518 Rec'd PCT/PTO 10 SEP 2001

SEALIST

Sequence Protocol

(1) GENERAL INFORMATION:

(i) APPLICANT:
(A) NAME: Schering Aktiengesellschaft
(B) STREET: Müllerstraße 178
(C) CITY: Berlin
(E) COUNTRY: Germany
(F) POSTAL CODE (ZIP): D-13303
(G) TELEPHONE: (030)-4681 2085
(H) FAX: (030)-4681 2058

(ii) TITLE OF INVENTION: Human Nucleic Acid Sequences from Human Endothelial Cells

(iii) Number of sequences: 59

(iv) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: Patentin release #1.0, version #1.25 (EPO)

(2) INFORMATION ON SEQ ID NO. 1:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1835 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

ttttacagtt ttccttttct tcagagttta ttttgaattt tcatttttgg ataaccaagc 60
agctctttaa gaagaatgca cagaagagtc attctggcac ttttggatag tacataagat 120
tttctttttt ttttttaaat tttttttaat agtcacattc agctcgcttg ctcaaaccag 180
actcccacat tgggtgagca agatgagccc ataggattcc agagttaata cgtaaccgta 240
tatacaaaca gccaaaaaac cataatggtg ccacagggat ggagcaggga agggcatctc 300
taacgtgtcc tctagtctat cttcgctaaa cagaacccac gttacacatg ataactagag 360
agcacactgt gttgaaacga ggatgctgac cccaaatggc acttggcagc atgcagttta 420
aagcaaaaga gacatccttt aataactgta taaaatccag gcagttccat taaaggggtt 480
aagaaaacca acaacaacaa aaagcgaggg actgtctgtt gtcactgtca aaaaggcact 540
tggagttaat gggaccagga ttggaggact cttagctgat acagatttca gtacgatttc 600
attaaaaggc ttggatgtta agagaggaca ctcagcggtt cctgaaggga gacgctgaga 660
tggaccgctg agaagcggaa cagatgaaca caaaggaatc aaatctttac aaccaaattg 720
catttaagcg acaacaaaaa aaggcaaacc ccaaaacgca acctaaccaa agcaaaatct 780
aagcaaaatc agacaacgaa gcagcgatgc atagctttcc tttgagagaa cgcatacctt 840
gagacgctac gtgccaacct aagttctcaa cgacagcttc acagtaggat tattgtgata 900
aaaatgactc aagcgatgca aaaagtttca tctgttccca gaatccgagg gagaactgag 960
gtgatcgtta gagcatagcg acatcacgtg cggtttctta atgtccctgg tggcggatac 1020
gccgagtcct cggaaggaca tctggacacc actttcagcc acctccttgc aggggcgaca 1080

tccgccaaag tcatccttta ttccgagtaa taactttaat tcctttctaa catttacacg 1140
gcaaacagga atgcagtaaa cgtccacgtc cgtcccacgg ctgggctgcc gttccgtttc 1200
ctccacgaac gggtacgcgc ttccatgaga aaggatattt ggcaatttta tattccacag 1260
tcaggtgggt ctgcgatagc tcatttaatg ttaaacgcca tcaggggcct ctcctcccgt 1320
ttctgccagg ggcttttctt gtcttctcct tggcgagctc gtgggcagat cttctctggt 1380
gggggctggc tgctggctcc gagggggcat ccgcagtccg tctggtcgtc tcctcctgca 1440
ggctgggcag ctggccacca cttctccgac tcgacccctc caacaagcat cgcagggcac 1500
tgtcctcggg ggtacagacc gtggtcccac attcgctacc actctgttcc acgtcatcca 1560
ggtacacgag ctgcgtgtag gccgtgctgt ctggggctcg aggctctttc tgctggtgct 1620
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attttggttc attcatatct acgccagagt ccaaactggc atcattactt ccgttccttc 1740
cagctctttg gagaatcaat gtatgaatgt ctaacctgac cgttggacct gccatccaag 1800
gagacgaacc acgcccgggg gtgcggaagc ggcct

(2) INFORMATION ON SEQ ID NO. 2:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 581 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

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gttctagatt gttttattca gtaattagct cttaagaccc ctggggcctg tgctacccag 60
acactaacaa cagtctctat ccagttgctg gttctgggtg acgtgatctc cccatcatga 120
tcaacttact tcctgtggcc cattagggaa gtggtgacct cgggagctat ttgcctgttg 180
agtgcacaca cctggaaaca tactgctctc atttttttcat ccacatcagt gagaaatgag 240
tggcccgtta gcaagatata actatgcaat catgcaacaa agctgcctaa taacatttca 300
tttattacag gactaaaagt tcattattgt ttgtaaagga tgaattcata acctctgcag 360
agttatagtt catacacagt tgatttccat ttataaaggc agaaagtcct tgttttctct 420
aaatgtcaag ctttgactga aaactcccgt ttttccagtc actggagtgt gtgcgtatga 480
aagaaaatct ttagcaatta gatgggagag aagggaaata gtacttgaaa tgtaggccct 540
cacctcccca tgacatcctc catgagcctc ctgatgtagt g
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(2) INFORMATION ON SEQ ID NO. 3:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 516 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

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tagagatgtt ggttgatgac ccccgggatc tggagcagat gaatgaagag tctctggaag 60
tcagcccaga catgtgcatc tacatcacag aggacatgct catgtcgcgg aacctgaatg 120
gacactctgg gttgattgtg aaagaaattg ggtcttccac ctcgagctct tcagaaacag 180
ttgttaagct tcgtggccag agtactgatt ctcttccaca gactatatgt cggaaaccaa 240
agacctccac tgatcgacac agcttgagcc tcgatgacat cagactttac cagaaagact 300
tcctgcgcat tgcaggtctg tgtcaggaca ctgctcagag ttacaccttt ggatgtggcc 360
atgaactgga tgaggaaggc ctctattgca acagttgctt ggcccagcag tgcatcaaca 420
tccaagatgc ttttccagtc aaaagaacca gcaaatactt ttctctggat ctcactcatg 480
atgaagttcc agagtttgtt gtgtaaagtc cgtctg
```

(2) INFORMATION ON SEQ ID NO. 4:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1099 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

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cccacaacac aggggccctg aaacacgcca gcctctcctc tgtggtcagc ttggcccagt 60
cctgctcact ggatcacagc ccattgtagg tggggcatgg tggggatcag ggcccctggc 120
ccacggggag gtagaagaag acctggtccg tgtaagggtc tgagaaggtg ccctgggtcg 180
ggggtgcgtc ttggccttgc cgtgccctca tcccccggct gaggcagcga cacagcaggt 240
gcaccaactc cagcaggtta agcaccaggg agatgagtcc aaccaccaac atgaagatga 300
tgaagatggt cttctccgtg gggcgagaga caaagcagtc cacgaggtag gggcagggtg 360
ctcgctggca cacaaacacg ggctccatgg tccagccgta caggcgccac tggccataga 420
ggaagcctgc ctctagcaca ctcttgcaga gcacactggc gacataggtg cccatcagtg 480
ctccgcggat gcgcaggcga ccatcttctg ccaccgagat cttggccatc tgacgctcta 540
cggccgccag cgcccgctcc acctgtgggt ccttggccgg cagtgcccgc agctcccccc 600
ccttctgccg cagccgctct tctcgccgag acaggtaaat gacatggccc aggtagacca 660
gggtgggtgt gctgacgaag aggaactgca gcacccagta gcggatgtgg gagatgggga 720
aggcctggtc atagcagacg ttggtgcagc ctggctgggc cgtgttacac tcgaaatctg 780
actgctcgtc accccacact gactcgccgg ccaggcccag gatgaggatg cggaagatga 840
agagcaccgt cagccagatc ttacccacca cggtcgagtg ctcctggacc tggtccagca 900
acttctccac gaagccccag tcacccatgg ctcccgggcc tccgtcggca aggagacaga 960
gcacgtcagt gtgtcagcat ggcatccttc tcgttcgccc agcaacaagc ctgcagggag 1020
gtctgccacg cccgttctac cgcctgcctg ccgggcggcc caggtggagg tggggacgat 1080
ggccggagtg acgcccgcg
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(2) INFORMATION ON SEQ ID NO. 5:

(i) SEQUENCE CHARACTERISTIC:
- (A) LENGTH: 1015 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:
- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

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gaggataggg agcctggggt caggagtgtg ggagacacag cgagactctg tctccaaaaa 60
aaaaagtgct ttttgaaaat gttgaggttg aaatgatggg aaccaacatt ctttggattt 120
agtggggagc ataatagcaa acacccccct ggttcgcaca tgtacaggaa tgggacccag 180
ttggggcaca gccatggact tccccgcccc ggaatgtgtg gtgcaaagtg gggccagggc 240
ccagacccaa gaggagaggg tggtccgcag acaccccggg atgtcagcat cccccgacct 300
gccttctggc ggcacctccc gggtgctgtg ttgagtcagc aggcatgggg tgagagcctg 360
gtatatgctg ggaacagggt gcaggggcca agcgttcctc cttcagcctt gacttgggcc 420
atgcaccccc tctcccccaa acacaaacaa gcacttctcc agtatggtgc caggacaggt 480
gtcccttcag tcctctggtt atgacctcaa gtcctacttg ggccctgcag cccagcctgt 540
gttgtaacct ctgcgtcctc aagaccacac ctggaagatt cttcttccct ttgaaggaga 600
atcatcattg ttgctttatc acttctaaga cattttgtac ggcacggaca agttaaacag 660
aatgtgcttc cctccctggg gtctcacacg ctcccacgag aatgccacag gggccgtgca 720
ctgggcaggc ttctctgtag aaccccaggg gcttcggccc agaccacagc gtcttgccct 780
gagcctagag cagggagtcc cgaacttctg cattcacaga ccacctccac aattgttata 840
accaaaggcc tcctgttctg ttatttcact taaatcaaca tgctattttg ttttcactca 900
cttctgactt tagcctcgtg ctgagccgtg tatccatgca gtcatgttca cgtgctagtt 960
acgtttttct tcttacacat gaaaataaat gcataagtgt tagaagaaaa aaaaa
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(2) INFORMATION ON SEQ ID NO. 6:

(i) SEQUENCE CHARACTERISTIC:
- (A) LENGTH: 2313 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:
- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

ccagagcagg cctggtggtg agcagggacg gtgcaccgga cggcgggatc gagcaaatgg 60
gtctggccat ggagcacgga gggtcctacg ctcgggcggg gggcagctct cggggctgct 120
ggtattacct gcgctacttc ttcctcttcg tctccctcat ccaattcctc atcatcctgg 180
ggctcgtgct cttcatggtc tatggcaacg tgcacgtgag cacagagtcc aacctgcagg 240
ccaccgagcg ccgagccgag ggcctataca gtcagctcct agggctcacg gcctcccagt 300
ccaacttgac caaggagctc aacttcacca cccgcgccaa ggatgccatc atgcagatgt 360
ggctgaatgc tcgccgcgac ctggaccgca tcaatgccag cttccgccag tgccagggtg 420
accgggtcat ctacacgaac aatcagaggt acatggctgc catcatcttg agtgagaagc 480
aatgcagaga tcaattcaag gacatgaaca agagctgcga tgccttgctc ttcatgctga 540
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aaacccggga gctgcagcac caagagcgcc actggccaag gagcaactgc aaaaggtgca 720
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gcagacccag ctagcgctgg aggagaaggc ggtgctgcgg aaggaacgag acaacctggc 1140
caaggagctg gaagagaaga agagggaggc ggagcagctc aggatggagc tggccatcag 1200
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gcccatgggc cctgtcccca acccccagcc catcgaccca gctagcctgg aggagttcaa 1320
gaggaagatc ctggagtccc agaggccccc tgcaggcatc cctgtagccc catccagtgg 1380
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gcagggatat gctcacagcg cccgacacaa ccccctcccg ccgcccccaa ccacccaggg 1500
ccaccatcag acaactccct gcatgcaaac ccctagtacc ctctcacacc cgcacccgcg 1560
cctcacgatc cctcacccag agcacacggc cgcggagatg acgtcacgca agcaacggcg 1620
ctgacgtcac atatcaccgt ggtgatggcg tcacgtggcc atgtagacgt cacgaagaga 1680
tatagcgatg gcgtcgtgca gatgcagcac gtcgcacaca gacatgggga acttggcatg 1740

acgtcacacc gagatgcagc aacgacgtca cgggccatgt cgacgtcaca catattaatg 1800
tcacacagac gcggcgatgg catcacacag acggtgatga tgtcacacac agacacagtg 1860
acaacacaca ccatgacaac gacacctata gatatggcac caacatcaca tgcacgcatg 1920
ccctttcaca cacactttct acccaattct cacctagtgt cacgttcccc cgaccctggc 1980
acacgggcca aggtacccac aggatcccat cccctcccgc acagccctgg gccccagcac 2040
ctcccctcct ccagcttcct ggcctcccag ccacttcctc acccccagtg cctggacccg 2100
gaggtgagaa caggaagcca ttcacctccg ctccttgagc gtgagtgttt ccaggacccc 2160
ctcggggccc tgagccgggg gtgagggtca cctgttgtcg ggaggggagc cactccttct 2220
cccccaactc ccagccctgc ctgtggcccg ttgaaatgtt ggtggcactt aataaatatt 2280
agtaaatcct taaaaaaaaa aaaaaaaaaa aaa

(2) INFORMATION ON SEQ ID NO. 7:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 389 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

```
gccaaaaaga tggcttcaaa agtaagaatg aaacatttga tccattcagc tttaggctat 60
gccactggat tcatgtctag aaaagatagg ataatttctg taaagaaatg aagaccttgc 120
tattctaaaa tcagatcctt acagatccag atttcaggaa acaaatacat aggggactaa 180
ctttccttgt tcagattagt ttttctcctt tgcacccagc tatataatat gaggaagtat 240
tgacttttta aaagtgtttt agttttccat ttctttgata tgaaaagtaa tatttcggga 300
gaaccctgag ctattaataa tctatgtggc tagtgcgtat atattggtct gaatttgttc 360
tccttttgtg gtgtccagtg ggtaacatc
```

(2) INFORMATION ON SEQ ID NO. 8:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 157 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

tgctttaaac agctgtgtca aaaactgaca tcagagagta aattgaattt ggttttgtag 60
gaagcaggaa gcaagcccac tcaaacgtga aatttggcat gagggatcca gtaactttct 120
cctcaatctg tgaactatat gtgagtttga tattttg

(2) INFORMATION ON SEQ ID NO. 9:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 561 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

aatagtcaaa acataaacaa aagctaatta actggcactg ttgtcacctg agactaagtg 60
gatgttgttg gctgacatac aggctcagcc agcagagaaa gaattctgaa ttccccttgc 120
tgaactgaac tattctgtta catatggttg acaaatctgt gtgttatttc ttttctacct 180

accatattta aatttatgag tatcaaccga ggacatagtc aaaccttcga tgatgaacat 240
tcctgatttt ttgcctgatt aatctctgtt gagctctact tgtggtcatt caagatttta 300
tgatgttgaa aggaaaagtg aatatgacct ttaaaaattg tattttgggt gatgatagtc 360
tcaccactat aaaactgtca attattgcct aatgttaaag atatccatca ttgtgattaa 420
ttaaacctat aatgagtatt cttaatggag aattcttaat ggatggatta tcccctgatc 480
ttttctttaa aatttctctg cacacacagg acttctcatt ttccaataaa tgggtgtact 540
ctgccccaat ttctaggaaa a

(2) INFORMATION ON SEQ ID NO. 10:

(i) SEQUENCE CHARACTERISTIC:

(A) LENGTH: 1508 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

cacaaacacg agagactcca cggtctgcct gagcaccgcc agcctcctag gctccagcac 60

tcgcaggtcc attcttctgc acgagcctct ctgtccagat ccataagcac ggtcagctca 120
gggtcgcgga gcagtacgag gacaagtacc agcagcagct cctctgaaca gagactgcta 180
ggatcatcct tctcctccgg gcctgttgct gatggcataa tccgggtgca acccaaatct 240
gagctcaagc caggtgagct taagccactg agcaaggaag atttgggcct gcacgcctac 300
aggtgtgagg actgtggcaa gtgcaaatgt aaggagtgca cctacccaag gcctctgcca 360
tcagactgga tctgcgacaa gcagtgcctt tgctcggccc agaacgtgat tgactatggg 420
acttgtgtat gctgtgtgaa aggtctcttc tatcactgtt ctaatgatga tgaggacaac 480
tgtgctgaca acccatgttc ttgcagccag tctcactgtt gtacacgatg gtcagccatg 540
ggtgtcatgt ccctcttttt gccttgttta tggtgttacc ttccagccaa gggttgcctt 600
aaattgtgcc aggggtgtta tgaccgggtt aacaggcctg gttgccgctg taaaaactca 660
aacacagttt gctgcaaagt tcccactgtc ccccctagga actttgaaaa accaacatag 720
catcattaat caggaatatt acagtaatga ggatttttc tttctttttt taatacacat 780
atgcaaccaa ctaaacagtt ataatcttgg cactgttaat agaaagttgg gatagtcttt 840
gctgtttgcg gtgaaatgct ttttgtccat gtgccgtttt aactgatatg cttgttagaa 900
ctcagctaat ggagctcaaa gtatgagata cagaacttgg tgacccatgt attgcataag 960
ctaaagcaac acagacactc ctaggcaaag tttttgtttg tgaatagtac ttgcaaaact 1020
tgtaaattag cagatgactt ttttccattg ttttctccag agagaatgtg ctatattttt 1080
gtatatacaa taatatttgc aactgtgaaa aacaagtggt gccatactac atggcacaga 1140
cacaaaatat tatactaata tgttgtacat tcggaagaat gtgaatcaat cagtatgttt 1200
ttagattgta ttttgcctta cagaaagcct ttattgtaag actctgattt ccctttggac 1260
ttcatgtata ttgtacagtt acagtaaaat tcaaccttta ttttctaatt ttttcaacat 1320
attgtttagt gtaaagaata tttatttgaa gttttattat tttataaaaa agaatattta 1380
ttttaagagg catcttacaa attttgcccc ttttatgagg atgtgatagt tgctgcaaat 1440
gaggggttac agatgcatat gtccaatata aaatagaaaa tatattaacg tttgaaatta 1500
aaaaaaaa

(2) INFORMATION ON SEQ ID NO. 11:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 389 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

```
gggcaggtga tcagggcaca catttcccgt ccattgagac agtagcattc ccggcaccca 60
tcgtgccagc tctcctcatt tttatgatga tgaccatcca cggtgagaca agtgcccgac 120
aggatgggtg gcccagctga agcacaggcc gctctgcact tgcagataag acagccgtga 180
ctgtcctgct ggaaacccaa ggggcagatc ttactgcatg agagctctgg acatttctta 240
cagcgacaga tgtcacagcc gtgcttattc ttcagcaatc caagtggaca atacttgtca 300
cagattatgg gtctgcactt cttgggcctt gggcggcact cacagatctc acagttttgg 360
acctcggccg cgaccacgct gggtaccga
```

(2) INFORMATION ON SEQ ID NO. 12:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 981 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

```
ttttttttt ttggattgca aaaatttatt aaaattggag acactgtttt aatcttcttg 60
tgccatgaga ctccatcagg cagtctacaa agaccactgg gaggctgagg atcacttgag 120
cccagaagtt tgaggctgta gtaagcttca aaggccactg cactctagct tgggtgaggc 180
aagacccttt caagcagtaa gctgcatgct tgcttgttgt ggtcattaaa aaccctagtt 240
taggataaca acatattaat cagggcaaaa tacaaatgtg tgatgcttgt tagtagagta 300
acctcagaat caaaatggaa cggttttaca gtgatatcat tatatttcat ttggcagaat 360
cattacatca ttggttacac tgaaaatcat cacatgtacc aaaagctgac tcacctagtt 420
taggataaca ggtctgcctg tttgaagatg aaaaataata cccatttaaa atttgcccta 480
ctcaatttcc ttctcagtca cattttaact tttaaacagc taatcactcc catctacaga 540
ttaaggtgta tatgccacca aaacctttg ccaccttaaa aatttccttc aaagtttaaa 600
ctaatgcctg catttcttca atcatgaatt ctgagtcctt tgcttcttta aaacttgctc 660
cacacagtgt agtcaagccg actctccata cccaagcaag tcatccatgg ataaaaacgt 720
taccaggagc agaaccatta agctggtcca ggcaagttgg actccaccat ttcaacttcc 780
agctttctgt ctaatgcctg tgtgccaatg gcttgagtta ggcttgctct ttaggacttc 840
agtagctatt ctcatccttc cttggggaca caactgtcca taaggtgcta tccagagcca 900
cactgcatct gcacccagca ccatacctca caggagtcga ctcccacgag ccgcctgtat 960
ataagagttc ttttgatgac g
```

(2) INFORMATION ON SEQ ID NO. 13:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 401 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

```
ataactacag cttcagcaga caactaaaga gactgcatta aggtgatttc tctggctata 60
aagagagccc ggccgcagag catgtgactg ctgggacctc tgggataggc aacactgccc 120
tctctccccc agagcgaccc cccgggcagg tcggggccca aggaatgacc cagcaactgc 180
tccctaccca gcacactctc tttactgcca cctgcaatta tgctgtgaag atgactgggt 240
gtggtcatca cgattcagag aaatcaagat ctatgaccat tttaggcaaa gagagaaact 300
tggagaattg ctgaggacta ctgaaccttg ttttgctttt ttaaaaaata ctaaatcctc 360
acttcagcat atttagttgt cattaaaatt aagctgatat t
```

(2) INFORMATION ON SEQ ID NO. 14:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1002 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

```
gacaatataa aaagtggaaa caagcataaa ttgcagacat aaaataatct tctggtagaa 60
acagttgtgg agaacaggtt gagtagagca acaacaacaa aagcttatgc agtcaccttc 120
tttgaaaatg ttaaatacaa gtcctattct ctttgtccag ctgggtttag ctagaggtag 180
ccaattactt ctcttaaggt ccatggcatt cgccaggatt ctataaaagc caagttaact 240
gaagtaaata tctggggccc atcgcacccc cactaagtac tttgtcacca tgttgtatct 300
taaaagtcat ttttcactgt ttgactcaga atttgggact tcagagtcaa acttcattgc 360
ttactccaaa cccagtttaa ttccccactt ttttaagtag gcttagcttt gagtgatttt 420
tggctataac cgaaatgtaa atccaccttc aaacaacaaa gtttgacaag actgaaatgt 480
tactgaaaac aatggtgcca tatgctccaa agacatttcc ccaagataac tgccaaagag 540
tttttgagga ggacaatgat catttattat gtaggagcct tgatatctct gcaaaataga 600
attaatacag ctcaaatgga gtagtaacca agcttttctg cccaggaagt aacaaacatc 660
actacgaaca tgagagtaca agaggaaact ttcataatgc atttttttcat tcatacattc 720
attcaataaa cattagccaa gctaatgtcc caagccactg tgccaggtat taacaatata 780
acaacaataa aagacacagt ccttcctctc aaggtgttca gtctagtagg gaagatgatt 840
attcattaaa atttttggtg catcagaatc atgaggagct tgtcaaaaat gtaaattcct 900
gcctatgttc tcagatattc tggttaggtc aggagtggga acccaaaatc aattctttta 960
acaaacacta aaggtgattc taacacaggc ggtgtgagga cc
```

(2) INFORMATION ON SEQ ID NO. 15:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 280 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

```
cgaggtgggc cacccgtgtc tggtctgaga tttttaaatg aggattacat tatcctattt 60
ataatattcc tattctaatc tattgtattc ttacaattaa atgtatcaaa taattcttaa 120
aaacattatt agaaacaaac tgcctaatac cttataagac taaaaaaatc accaagatga 180
aactgtatta tgactctcaa tatttaaaca tttaaaaaaa tgttagtgtt tgttaagcac 240
caatcttaac tatttcacct gcccgggcgg ccgctcgagg
```

(2) INFORMATION ON SEQ ID NO. 16:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 2041 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

```
ccccccgcag aactcccccc tggaatagga tttttaaaac ccttgacaat tagaaatcct 60
atagaggtta gcatttttta ggtaaaaata tggttgcccc tacagggatc atgcaacttc 120
cttaaaacca attcagcaca tatgtataaa gaacccttt taaaaacatt tgtacttgaa 180
atacagacac agtgatgctg aagacactaa acaaaaactg aaaagtacta taccttgata 240
aatttttgtta ttgccttctt tagagacttt ataatctcta gttgattttc aaggacttga 300
atttaataat ggggtaatta cacaagacgt aaaggatttt ttaaaaacaa gtatttttt 360
ttacctctag catcaattct tttataaaga atgctaaata aattacattt tttgttcagt 420
aaaactgaag atagaccatt taaatgcttc taccaaattt aacgcagctt aattagggac 480
caggtacata ttttcttctg aacatttttg gtcaagcatg tctaaccata aaagcaaatg 540
gaattttaag aggtagattt ttttttccatg atgcattttg ttaataaatg tgtcaagaaa 600
ataaaaacaa gcactgagtg tgttctcttg aagtataagg gtctaatgaa aaataaaaga 660
tagatatttg ttatagtctg acattttaac agtcatagta ttagacgttt cgtgaccagt 720
gcattttgga ctctctcagg atcaaaatac gagtctgcca actgtattaa atcctcctcc 780
acccccctcca ccagttggtc cacagcttcc tggtgggtcg ttgtcatcaa atccattggg 840
ccgaaatgaa catgaagcag atgcagcttg gagggcccgg gctcgagcat tcaactcttg 900
ttcctgtaaa tatagtttat tgtcttttgt tatagcatcc ataagttctt tctgtagagg 960
tgggtctcca tttatccaga gtccactggt tgggttatta ccacttaaac cattagtact 1020
atgctgtttt ttatacaaaa gcacataagc tgtgtccttt ggaaacctgc tcgtaatttt 1080
ctggactgac tgaaatgaag taaatgtcac tctactgtca ttaaataaaa acccattctt 1140
ttgacatttc cttatttttcc aaatcctgtt caaaaactgc actgggacta tctctcccta 1200
gtaaatgact ctgggaggat gctaatgcca gagcctcaga ctggtggtac atctgatatg 1260
aagagtctgt acttgtgata tttctggcat aagaatagta atgcccactt tcagaggata 1320
taccagagtg aaccacaacg gaacttaata gatagggcac caattttgtg caggaagctt 1380
catcagtccc tgaaggcttt aatttttttag caaggttctc actaagatca gtgaagtcaa 1440
catctacaga ccaactttct gacaatgaag agaaagaagt aattcttcta actggcaact 1500
ccaaaaccag tggccagtga tacattgtct aaaattttcc ttctcacatg atacttctga 1560
tcatatgaaa atctcaggag agtaagaata aggtattcag gttcctccgt gatttgcata 1620
gttttctcag cattttgcag agaggcacag ttttcacaat aatattggtt atcaccagta 1680
agaatctctg gagcccaaaa aataatttag taagtcagtt actgaaggtg tggtttcacc 1740

tcccggtttc tgaggtacat ctttattaac aagaatcttg ttagattcgt tagggacaga 1800
agtgttttca gaacagtaaa actcattagg aggactgcct atggtttttt cattcacaag 1860
tgagtcacag atgaaggcag ctgttgttgg attataaact actggctctt ctgaaggacc 1920
gggtacagac gcttgcatta gaccaccatc ttgtatactg ggtgatgatg ctggatcttg 1980
gacagacatg ttttccaaag aagaggaagc acaaaacgca agcgaaagat ctgtaaaggc 2040
t
```

(2) INFORMATION ON SEQ ID NO. 17:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 235 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

cgccccgggc aggtgtcagg ggttccaaac cagcctgggg aaacacagcg tagacccctc 60
acctctacaa ataaaaaatt aaaaaattag ccaggtgtgg cagcgaacaa ctgtagtctc 120
agatactcag gagactgagc tggaaaggat cacttgagcc caagaagttc aaggttacag 180
tgggccacga tcatgtcatt acactccagc ttgggtgaca aaatgagact gtcta

(2) INFORMATION ON SEQ ID NO. 18:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 2732 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

gtgtggagtt tcagctgcta ttgactataa gagctatgga acagaaaaag cttgctggct 60
tcatgttgat aactacttta tatggagctt cattggacct gttaccttca ttattctgct 120
aaatattatc ttcttggtga tcacattgtg caaaatggtg aagcattcaa acactttgaa 180
accagattct agcaggttgg aaaacattaa gtcttgggtg cttggcgctt tcgctcttct 240
gtgtcttctt ggcctcacct ggtccttgg gttgcttttt attaatgagg agactattgt 300
gatggcatat ctcttcacta tatttaatgc tttccaggga gtgttcattt tcatctttca 360

ctgtgctctc caaaagaaag tacgaaaaga atatggcaag tgcttcagac actcatactg 420
ctgtggaggc ctcccaactg agagtcccca cagttcagtg aaggcatcaa ccaccagaac 480
cagtgctcgc tattcctctg gcacacagag tcgtataaga agaatgtgga atgatactgt 540
gagaaaacaa tcagaatctt cttttatctc aggtgacatc aatagcactt caacacttaa 600
tcaaggtggc ataaatctta atatattatt acaggactga catcacatgg tctgagagcc 660
catcttcaag atttatatca tttagaggac attcactgaa caatgccagg gatacaagtg 720
ccatggatac tctaccgcta aatggtaatt ttaacaacag ctactcgctg cacaagggtg 780
actataatga cagcgtgcaa gttgtggact gtggactaag tctgaatgat actgcttttg 840
agaaaatgat catttcagaa ttagtgcaca acaacttacg gggcagcagc aagactcaca 900
acctcgagct cacgctacca gtcaaacctg tgattggagg tagcagcagt gaagatgatg 960
ctattgtggc agatgcttca tctttaatgc acagcgacaa cccagggctg gagctccatc 1020
acaaagaact cgaggcacca cttattcctc agcggactca ctcccttctg taccaacccc 1080
agaagaaagt gaagtccgag ggaactgaca gctatgtctc ccaactgaca gcagaggctg 1140
aagatcacct acagtccccc aacagagact ctctttatac aagcatgccc aatcttagag 1200
actctcccta tccggagagc agccctgaca tggaagaaga cctctctccc tccaggagga 1260
gtgagaatga ggacatttac tataaaagca tgccaaatct tggagctggc catcagcttc 1320
agatgtgcta ccagatcagc aggggcaata gtgatggtta tataatcccc attaacaaag 1380
aagggtgtat tccagaagga gatgttagag aaggacaaat gcagctggtt acaagtcttt 1440
aatcatacag ctaaggaatt ccaagggcca catgcgagta ttaataaata aagacaccat 1500
tggcctgacg cagctccctc aaactctgct tgaagagatg actcttgacc tgtggttctc 1560
tggtgtaaaa aagatgactg aaccttgcag ttctgtgaat ttttataaaa catacaaaaa 1620
ctttgtatat acacagagta tactaaagtg aattatttgt tacaaagaaa agagatgcca 1680
gccaggtatt ttaagattct gctgctgttt agagaaattg tgaaacaagc aaaacaaaac 1740
tttccagcca ttttactgca gcagtctgtg aactaaattt gtaaatatgg ctgcaccatt 1800
tttgtaggcc tgcattgtat tatatacaag acgtaggctt taaaatcctg tgggacaaat 1860
ttactgtacc ttactattcc tgacaagact tggaaaagca ggagagatat tctgcatcag 1920
tttgcagttc actgcaaatc ttttacatta aggcaaagat tgaaaacatg cttaaccact 1980
agcaatcaag ccacaggcct tatttcatat gtttcctcaa ctgtacaatg aactattctc 2040
atgaaaaatg gctaaagaaa ttatattttg ttctattgct agggtaaaat aaatacattt 2100
gtgtccaact gaaatataat tgtcattaaa ataattttaa agagtgaaga aaatattgtg 2160
aaaagctctt ggttgcacat gttatgaaat gtttttttct acactttgtc atggtaagtt 2220
ctactcattt tcacttcttt tccactgtat acagtgttct gctttgacaa agttagtctt 2280
tattacttac atttaaattt cttattgcca aaagaacgtg ttttatgggg agaaacaaac 2340
tctttgaagc cagttatgtc atgccttgca caaaagtgat gaaatctaga aaagattgtg 2400
tgtcaccccc gtttattctt gaacagaggg caaagagggc actgggcact tctcacaaac 2460
tttctagtga acaaaaggtg cctattcttt tttaaaaaaa taaaataaaa cataaatatt 2520
actcttccat attccttctg cctatattta gtaattaatt tattttatga taaagttcta 2580
atgaaatgta aattgtttca gcaaaattct gctttttttt catccctttg tgtaaacctg 2640
ttaataatga gcccatcact aatatccagt gtaaagttta acacggtttg acagtaaata 2700
aatgtgaatt ttttcaagtt aaaaaaaaaa aa

(2) INFORMATION ON SEQ ID NO. 19:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 276 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

```
ctccctaaat gattttaaaa taaattggat aaacatatga tataaagtgg gtactttaga 60
aaccgccttt gcatattttt tatgtacaaa tctttgtata caattccgat gttccttata 120
tattccctat atagcaaacc aaaaccagga cctcccaact gcatgcctca agtccctgtg 180
gagcactctg gcaactggat ggccctactt gctttctgac aaaatagctg gaaaggagga 240
gggaccaatt aaatacctcg gccgcgacca cgctgg
```

(2) INFORMATION ON SEQ ID NO. 20:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 2361 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

attgtaccag ccttgatgaa cgtgggccct gcttcgcttt tgagggccat aagctcattg 60
cccactggtt tagaggctac cttatcattg tctcccgtga ccggaaggtt tctcccaagt 120
cagagtttac cagcagggat tcacagagct ccgacaagca gattctaaac atctatgacc 180
tgtgcaacaa gttcatagcc tatagcaccg tctttgagga tgtagtggat gtgcttgctg 240
agtggggctc cctgtacgtg ctgacgcggg atgggcgggt ccacgcactg caggagaagg 300
acacacagac caaactggag atgctgttta agaagaacct atttgagatg gcgattaacc 360
ttgccaagag ccagcatctg gacagtgatg ggctggccca gattttcatg cagtatggag 420
accatctcta cagcaagggc aaccacgatg gggctgtcca gcaatatatc cgaaccattg 480
gaaagttgga gccatcctac gtgatccgca agtttctgga tgcccagcgc attcacaacc 540
tgactgccta cctgcagacc ctgcaccgac aatccctggc caatgccgac cataccaccc 600
tgctcctcaa ctgctatacc aagctcaagg acagctcgaa gctggaggag ttcatcaaga 660
aaaagagtga gagtgaagtc cactttgatg tggagacagc catcaaggtc ctccggcagg 720
ctggctacta ctcccatgcc ctgtatctgg cggagaacca tgcacatcat gagtggtacc 780
tgaagatcca gctagaagac attaagaatt atcaggaagc ccttcgatac atcggcaagc 840
tgccttttga gcaggcagag agcaacatga agcgctacgg caagatcctc atgcaccaca 900
taccagagca gacaactcag ttgctgaagg gactttgtac tgattatcgg cccagcctcg 960
aaggccgcag cgatagggag gccccaggct gcagggccaa ctctgaggag ttcatcccca 1020
tctttgccaa taacccgcga gagctgaaag ccttcctaga gcacatgagt gaagtgcagc 1080
cagactcacc ccaggggatc tacgacacac tccttgagct gcgactgcag aactgggccc 1140
acgagaagga tccacaggtc aaagagaagc ttcacgcaga ggccatttcc ctgctgaaga 1200
gtggtcgctt ctgcgacgtc tttgacaagg ccctggtcct gtgccagatg cacgacttcc 1260
aggatggtgt cctttacctt tatgagcagg ggaagctgtt ccagcagatc atgcactacc 1320
acatgcagca cgagcagtac cggcaggtca tcagcgtgtg tgagcgccat ggggagcagg 1380
acccctcctt gtgggagcag gccctcagct acttcgctcg caaggaggag gactgcaagg 1440
agtatgtggc agctgtcctc aagcatatcg agaacaagaa cctcatgcca cctcttctag 1500
tggtgcagac cctggcccac aactccacag ccacactctc cgtcatcagg gactacctgg 1560
tccaaaaact acagaaacag agccagcaga ttgcacagga tgagctgcgg gtgcggcggt 1620
accgagagga gaccacccgt atccgccagg agatccaaga gctcaaggcc agtcctaaga 1680
ttttccaaaa gaccaagtgc agcatctgta acagtgcctt ggagttgccc tcagtccact 1740

tcctgtgtgg ccactccttc caccaacact gctttgagag ttactcggaa agtgatgctg 1800
actgccccac ctgcctccct gaaaaccgga aggtcatgga tatgatccgg gcccaggaac 1860
agaaacgaga tctccatgat caattccagc atcagctcaa gtgctccaat gacagctttt 1920
ctgtgattgc tgactacttt ggcagaggtg ttttcaacaa attgactctg ctgaccgacc 1980
ctcccacagc cagactgacc tccagcctgg aggctgggct gcaacgcgac ctactcatgc 2040
actccaggag gggcacttaa gcagcctgga ggaagatgtg ggcaacagtg gaggaccaag 2100
agaacagaca caatgggacc tgggcgggcg ttacacagaa ggctggctga catgcccagg 2160
gctccactct catctaatgt cacagccctc acaagactaa agcggaactt tttcttttcc 2220
ctggccttcc ttaattttaa gtcaagcttg gcaatccctt cctctttaac taggcaggtg 2280
ttagaatcat ttccagatta atgggggga aggggaacct caggcaaacc tcctgaagtt 2340
ttggaaaaaa aagctggttt c

(2) INFORMATION ON SEQ ID NO. 21:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 179 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

aggtgttaga tgctcttgaa aaagaaactg catctaagct gtcagaaatg gattctttta 60
acaatcaact aaaggaactg agagaaacct acaacacaca gcagttagcc cttgaacagc 120
tttataagat caacgtgaca agttgaagga aattgaaagg aaaaaattag aactaatgc

(2) INFORMATION ON SEQ ID NO. 22:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 905 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

```
ttttttttt ttctttaacc gtgtggtctt tatttcagtg ccagtgttac agatacaaca 60

caaatgttcc agttagaagg aattcaaacg gaatgccaag gtccaagcca ggctcaagaa 120
ataaaaaggg aggtttggag taatagataa gatgactcca atactcactc ttcctaaggg 180
caaaggtact tttgatacag agtctgatct ttgaaactgg tgaactcctc ttccacccat 240
taccatagtt caaacaggca agttatgggc ttaggagcac tttaaaattt gtggtgggaa 300
tagggtcatt aataactatg aatatatctt ttagaaggtg accattttgc actttaaagg 360
gaatcaattt tgaaaatcat ggagactatt catgactaca gctaaagaat ggcgagaaag 420
gggagctgga agagccttgg aagtttctat tacaaataga gcaccatatc cttcatgcca 480
aatctcaaca aaagctcttt ttaactccat ctgtccagtg tttacaaata aactcgcaag 540
gtctgaccag ttcttggtaa caaacataca tgtgtgtgtc tgtgtgtata cagcaatgca 600
cagaaaaggc taccaggagc ctaatgcctc tttcaaacat tgggggaacc agtagaaaaa 660
ggcagggctc cctaatgtcc attattacat ttccattccg aatgccagat gttaaaagtg 720
cctgaagatg gtaacccagc tagtgaggaa taaatacccc accttgccca gtccacagag 780
aaacaacagt agaaagaagg ggcaactctt tgctgcagag acaaagtgag tgttttttcg 840
ccatggattg cagtcctctc ctccagacca gctgcttatt tcctcagggg cccagggaat 900
gttga
```

(2) INFORMATION ON SEQ ID NO. 23:

(i) SEQUENCE CHARACTERISTIC:
- (A) LENGTH: 213 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:
- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:

ggtctcttct ttcctttttt tttttccaaa agtgttcttt tatttctagt aacatatatt 60
gtataaatac tctattttat atgcacttcc acaaaagcga tataatttaa aagttttttt 120
cattagaaat aaatgtataa aaataaatat gttattatag gcatttatta ctaactatag 180
tccttcttgg aaggaacacc caaaccaata cttataaagt acatgtaatt tatagtaaca 240
tattttacta tatacatatg gaaaaaatca tattctcaca gaagagctga acagacattc 300
accaggatac gactgttgga ccagctgctg gagatggacc tgctaccccc cagcagcctc 360
cccaccacaa gacaagtgat ctcaatgtcc ccaaacctgt gggaccctgt tctacacacc 420
tcatttttgt tccggcgttt catcctcctt gtgtgattgt actgattttc atgagacaca 480
agttacttct ttacatccat attcccaaag cagggttaca tggtaggaaa gaaaggaagt 540
tggaggtact aagctcattg tgtctcctct agcttttacc agcatctaat gcttcactgc 600
ttttttttca ttgtagactt taatgcactt gaataaatac atggagttgt tttttcctca 660
aaatgaatta cacaaataaa gactgagatg gtccaaaaaa ggaaagagga agccatttgc 720
gttatttcac gttgctgagc ctttctctca tgttgaacaa tctgaagttt taattctcgg 780
tagaaataat gtataaacat tctctgaaac catagcagcc ataaacagtg ctggtcaaag 840
atcctatttg tactcctttc tccccccatt gttagtgagg taaagtaaaa caggtcttag 900
taaaatctca cttttctcct acttttcatt tcccaacccc catgatacta agtatttgat 960
aagtaccagg aaacaggggt tgtaatagtt ctaacttttt ttgacaattg ctttgttttt 1020
tctaaacttg taatagatgt aacaaaagaa ataataataa taatgcccgg ggctttatta 1080
tgctatatca ctgctcagag gttaataatc ctcactaact atcctatcaa atttgcaact 1140
ggcagtttac tctgatgatt caactccttt tctatctacc cccataatcc caccttactg 1200
atacacctca ctggttactg gcaagatacg ctggatccct ccagccttct tgctttccct 1260
gcaccagccc ttcctcactt tgccttgccc tcaaagctaa caccacttaa accacttaac 1320
tgcattctgc cattgtgcaa aagtctatga aatgtttagg tttctttaaa ggatcacagc 1380
tctcatgaga taacacccct ccatcatggg acagacactt caagcttctt tttttgtaac 1440
ccttcccaca ggtcttagaa catgatgacc actcccccag ctgccactgg gggcagggat 1500
ggtctgcaca aggtctggtg ctggctggct tcacttcctt tgcacactcg gaagcaggct 1560
gtccattaat gtctcggcat tctaccagtc ttctctgcca acccaattca catgacttag 1620
aacattcgcc ccactcttca atgacccatg ctgaaaaagt ggggatagca ttgaaagatt 1680
ccttcttctt ctttacgaag taggtgtatt taattttagg tcgaagggca ttgcccacag 1740
taagaacctg gatggtcaag ggctctttga gagggctaaa gctgcgaatt ctttccaatg 1800
ccgcagagga gccgctgtac ctcaagacaa caccttttgta cataatgtct tgctctaagg 1860
tggacaaagt gtagtcacca ttaagaatat atgtgccatc agcagctttg atggcaagaa 1920
agctgccatt gttcctggat cccctctggt tccgctgttt cacttcgatg ttggtggctc 1980
cagttggaat tgtgatgata tcatgatatc caggttttgc actagtaact gatcctgata 2040
ttttttttaca agtagatcca tttcccccgc aaacaccaca tttatcaaac ttctttttgg 2100
agtctatgat gcgatcacaa ccagctttta caca

(2) INFORMATION ON SEQ ID NO. 24:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1626 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 24:

ggacaatttc tagaatctat agtagtatca ggatatattt tgctttaaaa tatattttgg 60
ttatttttgaa tacagacatt ggctccaaat tttcatcttt gcacaatagt atgacttttc 120
actagaactt ctcaacattt gggaactttg caaatatgag catcatatgt gttaaggctg 180
tatcatttaa tgctatgaga tacattgttt tctccctatg ccaaacaggt gaacaaacgt 240
agttgttttt tactgatact aaatgttggc tacctgtgat tttatagtat gcacatgtca 300
gaaaaaggca agacaaatgg cctcttgtac tgaatacttc ggcaaactta ttgggtcttc 360
attttctgac agacaggatt tgactcaata tttgtagagc ttgcgtagaa tggattacat 420
ggtagtgatg cactggtaga aatggttttt agttattgac tcagaattca tctcaggatg 480
aatcttttat gtctttttat tgtaagcata tctgaattta ctttataaag atggttttag 540
aaagctttgt ctaaaaattt ggcctaggaa tggtaacttc attttcagtt gccaaggggt 600
agaaaaataa tatgtgtgtt gttatgttta tgttaacata ttattaggta ctatctatga 660
atgtatttaa atatttttca tattctgtga caagcattta taatttgcaa caagtggagt 720
ccatttagcc cagtgggaaa gtcttggaac tcaggttacc cttgaaggat atgctggcag 780
ccatctcttt gatctgtgct taaactgtaa tttatagacc agctaaatcc ctaacttgga 840
tctggaatgc attagttatg ccttgtacca ttcccagaat ttcaggggca tcgtgggttt 900
ggtctagtga ttgaaaacac aagaacagag agatccagct gaaaaagagt gatcctcaat 960
atcctaacta actggtcctc aactcaagca gagtttcttc actctggcac tgtgatcatg 1020
aaacttagta gaggggattg tgtgtatttt atacaaattt aatacaatgt cttacattga 1080
taaaattctt aaagagcaaa actgcatttt atttctgcat ccacattcca atcatattag 1140
aactaagata tttatctatg aagatataaa tggtgcagag agactttcat ctgtggattg 1200
cgttgtttct tagggttcct agcactgatg cctgcacaag catgtgatat gtgaaataaa 1260
atggattctt ctatagctaa atgagttccc tctggggaga gttctggtac tgcaatcaca 1320

atgccagatg gtgtttatgg gctatttgtg taagtaagtg gtaagatgct atgaagtaag 1380
tgtgtttgtt ttcatcttat ggaaactctt gatgcatgtg cttttgtatg gaataaattt 1440
tggtgcaata tgatgtcatt caactttgca ttgaattgaa ttttggttgt atttatatgt 1500
attatacctg tcacgcttct agttgcttca accattttat aaccattttt gtacatattt 1560
tacttgaaaa tattttaaat ggaaatttaa ataaacattt gatagtttac ataataaaaa 1620
aaaaaa

(2) INFORMATION ON SEQ ID NO. 25:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1420 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 25:

gttcagcatt gtttctgctt ctgaaatctg tatagtacac tggtttgtaa tcattatgtc 60
ttcattgaaa tccttgctac ttctcttcct cctcaatgaa agacacgaga gacaagagcg 120

acacaagctt aagaaaaacg agcaaggaag agtatcttca ttattctcat tttctctgag 180
ttggaaacaa aaacatgaag gactccaact agaagacaga tatttacatt taaatagatt 240
agtgggaaaa ctttaagagt ttccacatat tagttttcat tttttgagtc aagagactgc 300
tccttgtact gggagacact agtagtatat gtttgtaatg ttactttaaa attatctttt 360
tattttataa ggcccataaa tactggttaa actctgttaa aagtgggcct tctatcttgg 420
atggtttcac tgccatcagc catgctgata tattagaaat ggcatcccta tctacttact 480
ttaatgctta aaattataca taaaatgctt tatttagaaa acctacatga tacagtggtg 540
tcagccttgc catgtatcag tttcacttga aatttgagac caattaaatt tcaactgttt 600
agggtggaga aagaggtact ggaaaacatg cagatgagga tatcttttat gtgcaacagt 660
atcctttgca tgggaggaga gttactcttg aaaggcaggc agcttaagtg gacaatgttt 720
tgtatatagt tgagaatttt acgacacttt taaaaattgt gtaattgtta aatgtccagt 780
tttgctctgt tttgcctgaa gttttagtat ttgttttcta ggtggacctc tgaaaaccaa 840
accagtacct ggggaggtta gatgtgtgtt tcaggcttgg agtgtatgag tggttttgct 900
tgtattttcc tccagagatt ttgaacttta ataattgcgt gtgtgttttt ttttttttaa 960
gtggctttgt tttttttttct caagtaaaat tgtgaacata tttcctttat aggggcaggg 1020
catgagttag ggagactgaa gagtattgta gactgtacat gtgccttctt aatgtgtttc 1080
tcgacacatt ttttttcagt aacttgaaaa ttcaaaaggg acatttggtt aggttactgt 1140
acatcaatct atgcataaat ggcagcttgt tttcttgagc cactgtctaa attttgtttt 1200
tatagaaatt ttttatactg attggttcat agatggtcag ttttgtacac agactgaaca 1260
atacagcact ttgccaaaaa tgagtgtagc attgtttaaa cattgtgtgt taacacctgt 1320
tctttgtaat tgggttgtgg tgcattttgc actacctgga gttacagttt tcaatctgtc 1380
agtaaataaa gtgtcccttta acttcaaaaa aaaaaaaaaa

(2) INFORMATION ON SEQ ID NO. 26:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 689 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 26:

```
aaacaaacaa aaaaaaagtt agtactgtat atgtaaatac tagcttttca atgtgctata 60
caaacaatta tagcacatcc ttccttttac tctgtctcac ctcctttagg tgagtacttc 120
cttaaataag tgctaaacat acatatacgg aacttgaaag ctttggttag ccttgcctta 180
ggtaatcagc ctagtttaca ctgtttccag ggagtagttg aattactata aaccattagc 240
cacttgtctc tgcaccattt atcacaccag gacagggtct ctcaacctgg gcgctactgt 300
catttggggc caggtgattc ttccttgcaa gggctgtcct gtacctgccc gggcggccgc 360
tcgaagcgtg gtcgcggccg aggtactgaa aggaccaagg agctctggct gccctcagga 420
attccaaatg accgaaggaa caaagcttca gggctctggg tggtgtctcc cactattcag 480
gaggtggtcg gaggtaacgc agcttcattt cgtccagtcc tttccagtat ttaaagttgt 540
tgtcaagatg ctgcattaaa tcaggcaggt ctacaaaggc atcccaagca tcaaacatgt 600
ctgtgatgaa gtaatcaatg aaacaccgga acctccgacc acctcctgaa tagtgggaga 660
cacacccaga gcctgaagtt tgtccttcg
```

(2) INFORMATION ON SEQ ID NO. 27:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 471 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 27:

```
tcccagcggc atgaagtttg agattggcca ggccctgtac ctgggcttca tctccttcgt 60
ccctctcgct cattggtggc accctgcttt gcctgtcctg ccaggacgag gcaccctaca 120
agccctaacc caggccccgc ccagggccac cacgaccact gcaaacaccg cacctgccta 180
ccagccacca gctgcctaca aagacaatcg ggcccccctca gtgacctcgg ccaccacagc 240
gggtacaggc tgaacgacta cgtgtgagtc cccacagcct gcttctcccc tgggctgctg 300
tgggctggtt cccggcggga ctgtcaatgg aggcaggggt tccagcacaa agtttacttc 360
tgggcaattt ttgtatccaa ggaaataatg tgaatgcgag gaaatgtctt tagagcacag 420
ggacagaggg ggaaataaga ggaggagaaa gctctctata ccaaagactg a
```

(2) INFORMATION ON SEQ ID NO. 28:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 929 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 28:

```
ggtgaactca gtgcattggg ccaatggttc gacacaggct ctgccagcca caaccatcct 60
gctgcttctg acggtttggc tgctggtggg ctttcccctc actgtcattg gaggcatctt 120
tgggaagaac aacgccagcc cctttgatgc accctgtcgc accaagaaca tcgcccggga 180
gattccaccc cagccctggt acaagtctac tgtcatccac atgactgttg gaggcttcct 240
gcctttcagt gccatctctg tggagctgta ctacatcttt gccacagtat ggggtcggga 300
gcagtacact ttgtacggca tcctcttctt tgtcttcgcc atcctgctga gtgtgggggc 360
ttgcatctcc attgcactca cctacttcca gttgtctggg gaggattacc gctggtggtg 420
gcgatctgtg ctgagtgttg gctccaccgg cctcttcatc ttcctctact cagttttcta 480
ttatgcccgg cgctccaaca tgtctggggc agtacagaca gtagagttct tcggctactc 540
cttactcact ggttatgtct tcttcctcat gctgggcacc atctcctttt tttcttccct 600
aaagttcatc cggtatatct atgttaacct caagatggac tgagttctgt atggcagaac 660
tattgctgtt ctctcccttt cttcatgccc tgttgaactc tcctaccagc ttctcttctg 720
attgactgaa ttgtgtgatg gcattgttgc cttccctttt tcccttgggg cattccttcc 780
ccagagaggg cctggaaatt ataaatctct atcacataag gattatatat ttgaactttt 840
taagttgcct ttagttttgg tcctgatttt tctttttaca attaccaaaa taaaatttat 900
taagaaaaag aaaaaaaaaa aaaaaaaaa
```

(2) INFORMATION ON SEQ ID NO. 29:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1775 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 29:

gaacgtgatg ggaactttgg gaggatgtct gagaaaatgt ccgaagggat tttggccaac 60
accagaaaac gccaatgtcc taggaattcc ctcccaaaat gcttcccaaa aaattactca 120
ttgacaattc aaattgcact tggctggcgg cagcccgggc ggccttcagt ccgtgtgggg 180
cgcccgcgtg gccttctcct cgtaggactc cccaaactcg ttcactctgc gtttatccac 240
aggataaagc caccgctggt acaggtagac cagaaacacc acgtcgtccc ggaagcaggc 300
cagccggtga gacgtgggca tggtgatgat gaaggcaaag acgtcatcaa tgaaggtgtt 360
gaaagccttg taggtgaagg ccttccaggg cagatgtgcc actgacttca acttgtagtt 420
cacaaagagc tggggcagca tgaagaggaa accaaaggca tagaccccgt tgacgaagct 480
gttgattaac caggagtacc agctcttata tttgatattc aggagtgaat agacagcacc 540
cccgacacag agagggtaca gcaggtatga caagtacttc atggcctgag tatcgtactc 600
ctcggttttc ctctcagatt cgctgtaagt gccaaactga aattcgggca tcaggcctct 660
ccaaaaaata gtcatcttca atgccttctt cactttccac agctcaatgg cggctccaac 720
acccgccggg accagcacca gcaggctcgt ctgctcgtcc agcaggaaca gaaagatgac 780
cacggtgctg aagcagcgcc agagcactgc cttggtggac atgccgatca tgctcttctt 840
cttcttccag aaactgatgt catttttaaa ggccaggaaa tcaaagagaa gatggaacgc 900
tgcgacaaag aaggtcagcg ccaggaagta taagttggta tctacaaaaa ttcctttcac 960
ctcatcagca tctttctctg aaaacccgaa ctgctgcagg gagtacacgg cgtcctgcat 1020
gtggatccag aagcgcagcc gccccagtga gaccttgtcg taggacacgg tgaggggcag 1080
ctcggtggtg gagcggttta tgaccatcag gtccttcacg cggttgctga gctggtcgat 1140
gaacaggatg ggcaggtaat gcacggtttt ccccagctgg atcatcttca tgtaccgatg 1200
cacatcggca ggcagggagg acccgtcaaa gacaaagttg tccgccatca cgttcagcgc 1260
cagccgcggt cgccagtggg acactggctc atccagggca ctcgtcggct tcttctccgc 1320
ctcgatctgc tgtgtatcag actccccggt gagcaggttg atttcttctg gcttggggac 1380
catgtaggtg gtcagaggac tgaccaggtg cacctgcttc ccgtcgtgcc acggcaggac 1440
cccagcgtga tggaggaaga tgtaggcata cagcgtccca ttgtttctcg ttttctttgg 1500
tacagaaaca ttaactgtcc tttcaaattt ggactccaca tcaaagtctt ccacattcaa 1560
gaccaggtcg atgttgttct cagcacccag gtgggacctc gtcgtggtgt acacgctcag 1620
ctgcagcttg ggccgccgcg ccaggtaggg ctggatgcag ttggcgtcgc cggagcacgg 1680
gcgggtgtag acgatgccgt acatgaccca gcaggtgtgc accacgtaga ccacgaacac 1740
gcccaccacc aagctggtga aggagctgcg gcccc

(2) INFORMATION ON SEQ ID NO. 30:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 4064 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 30:

ATTTCCTCCC GTTCTTTATC AGAGCCCCCA AAATAAGTAG GAATGGGCAG TGGCTATTCA 60
CATTCACTAC ACCTTTTCCA TTTGCTAATA AGGCCCTGCC AGGCTGGGAG GGAATTGTCC 120
CTGCCTGCTT CTGGAGAAAG AAGATATTGA CACCATCTAC GGGCACCATG GAACTGCTTC 180
AAGTGACCAT TCTTTTTCTT CTGCCCAGTA TTTGCAGCAG TAACAGCACA GGTGTTTTAG 240
AGGCAGCTAA TAATTCACTT GTTGTTACTA CAACAAAACC ATCTATAACA ACACCAAACA 300
CAGAATCATT ACAGAAAAAT GTTGTCACAC CAACAACTGG AACAACTCCT AAAGGAACAA 360
TCACCAATGA ATTACTTAAA ATGTCTCTGA TGTCAACAGC TACTTTTTTA ACAAGTAAAG 420
ATGAAGGATT GAAAGCCACA ACCACTGATG TCAGGAAGAA TGACTCCATC ATTTCAAACG 480
TAACAGTAAC AAGTGTTACA CTTCCAAATG CTGTTTCAAC ATTACAAAGT TCCAAACCCA 540
AGACTGAAAC TCAGAGTTCA ATTAAAACAA CAGAAATACC AGGTAGTGTT CTACAACCAG 600

ATGCATCACC TTCTAAAACT GGTACATTAA CCTCAATACC AGTTACAATT CCAGAAAACA 660
CCTCACAGTC TCAAGTAATA GGCACTGAGG GTGGAAAAAA TGCAAGCACT TCAGCAACCA 720
GCCGGTCTTA TTCCAGTATT ATTTTGCCGG TGGTTATTGC TTTGATTGTA ATAACACTTT 780
CAGTATTTGT TCTGGTGGGT TTGTACCGAA TGTGCTGGAA GGCAGATCCG GGCACACCAG 840
AAAATGGAAA TGATCAACCT CAGTCTGATA AAGAGAGCGT GAAGCTTCTT ACCGTTAAGA 900
CAATTTCTCA TGAGTCTGGT GAGCACTCTG CACAAGGAAA AACCAAGAAC TGACAGCTTG 960
AGGAATTCTC TCCACACCTA GGCAATAATT ACGCTTAATC TTCAGCTTCT ATGCACCAAG 1020
CGTGGAAAAG GAGAAAGTCC TGCAGAATCA ATCCCGACTT CCATACCTGC TGCTGGACTG 1080
TACCAGACGT CTGTCCCAGT AAAGTGATGT CCAGCTGACA TGCAATAATT TGATGGAATC 1140
AAAAAGAACC CCGGGGCTCT CCTGTTCTCT CACATTTAAA AATTCCATTA CTCCATTTAC 1200
AGGAGCGTTC CTAGGAAAAG GAATTTTAGG AGGAGAATTT GTGAGCAGTG AATCTGACAG 1260
CCCAGGAGGT GGGCTCGCTG ATAGGCATGA CTTTCCTTAA TGTTTAAAGT TTTCCGGGCC 1320
AAGAATTTTT ATCCATGAAG ACTTTCCTAC TTTTCTCGGT GTTCTTATAT TACCTACTGT 1380
TAGTATTTAT TGTTTACCAC TATGTTAATG CAGGGAAAAG TTGCACGTGT ATTATTAAAT 1440
ATTAGGTAGA AATCATACCA TGCTACTTTG TACATATAAG TATTTTATTC CTGCTTTCGT 1500
GTTACTTTTA ATAAATAACT ACTGTACTCA ATACTCTAAA AATACTATAA CATGACTGTG 1560
AAAATGGCAA AAAAATTGTC TTCCTATAAT TATGAATATT TTTGGATGGA TTATTAGAAT 1620
ACATGAACTC ACTAATGAAA GGCATTTGTA ATAAGTCAGA AAGGGACATA GGATTCACAT 1680
ATCAGACTGT TAGGGGGAGA GTAATTTATC AGTTCTTTGG TCTTTCTATT TGTCATTCAT 1740
ACTATGTGAT GAAGATGTAA GTGCAAGGGC ATTTATAACA CTATACTGCA TTCATTAAGA 1800
TAATAGGATC ATGATTTTTC ATTAACTCAT TTGATTGATA TTATCTCCAT GCATTTTTTA 1860
TTTCTTTTAG AAATGTAATT ATTTGTTCTA GCAATCATTG CTAACCTCTA GTTTGTAGAA 1920
AATCAACACT TTATAAATAC ATAATTATGA TATTATTTTT CATTGTATCA CTGTTCTAAA 1980
AATACCATAT GATTATAGCT GCCACTCCAT CAGGAGCAAA TTCTTCTGTT AAAAGCTAAC 2040
TGATCAACCT TGACCACTTT TTTGACATGT GAGATCAAAG TGTCAAGTTG GCTGAGGTTT 2100
TTTGGAAAGC TTTAGAACTA ATAAGCTGCT GGTGGCAGCT TTGTAACGTA TGATTATCTA 2160
AGCTGATTTT GATGCTAAAT TATCTTAGTG ATCTAAGGGG CAGTTTAGTG AAGATGGAAT 2220
CTTGTATTTA AAATAGCCTT TTAAAATTTG TTTTGTGGTG ATGTATTTTG ACAACTTCCA 2280
TCTTTAGGAG TTATATAATC ACCTTGATTT TAGTTTCCTG ATGTTTGGAC TATTTATAAT 2340
CAAGGACACC AAGCAAGCAT AAGCATATCT ATATTTCTGA CTGGTGTCTC TTTGAGAAGG 2400
ATGGGAAGTA GAAAAAAAAA AAAGAAAGAA AGGAAAGGAA GAGAGGAGAG AAGAAGGCAG 2460
GGATCTCCAC TATGTATGTT TTCACTTTAG AACTGTTGAG CCCATGCTTA ATTTTAATCT 2520
AGAAGTCTTT AAATGGTGAG ACAGTGACTG GAGCATGCCA ATCAGAGAGC ATTTGTCTTC 2580
AGAAAAAAAA AAAATCTGAG TTTGAGACTA GCCTGGCCAA CATGTTGAAA CCCCATATCT 2640
ACTAAAAATA CAAAAATTAG CCTGGTGTGG TGGCGCACGC CTGTAGTCCC AGCTACTCTG 2700
GAGCCTGAGG AACGTGAATC GCTTGAACCC AGAAGACAGA GGTTGCAGTG AGCTGAGATG 2760
GCACTATTGC ACTCCAGCCT GGGTGACACA GCAAGACTCT GTCTCAAAAA AAAAAAAAAA 2820
AAAAAAGGAA AAAAAAGAAA GAAAGAAAAA AAAAAGAGAG AGAGAGAGTC CCAGCACACC 2880
TAGATAATTT ACCGAGCTCT TCAGCAAAAA CCATGTTACA TACAGCATAT TCCAAAGAAA 2940
TGAACTCTTC TGCAATTTAA ATTATAAGTA ATATGTTATT TTGGATCCTA GAGAAACCAT 3000
TTTCTCTACA TTTCATGAGC ATTGTTAGAA AAGAGTTTAC AAGAATTAGG AAGAGGGAAC 3060
AATTTTAATG GTCAGAAAAG AATAAAATTT ATTCTAGTTC AAGAAGTGCA CACAAAGAAT 3120
ATGCATTAAT CTAACAACTA TGAGATTAAA TCTTTCAAAA AGGTCAAAGG AGGATTGAGA 3180
AGTTTACAGA GATGTCCACG GCATTTTATA TCAATCTCAA AGGTAAGGTC TGCATTTTTA 3240
TAAACCAACT TAAACTTCTG TTGAGATAGG ATATTTTGTT TTCAAGCCAA AATTACCATT 3300
AATCAAATAT GTTTTAATTA TCTGATTTAG ATGATCTACT TTTTATGCCT GGCTTACTGT 3360
AAGTTTTTTA TTCTGATACA CAGTTCAAAC ATCATTGCAA CAAAGAAGTG CCTGTATTTA 3420
GATCAAAGGC AAGACTTTCT ATGTGTTTGT TTTGCATAAT AATATGAATA TAATTTAAGT 3480
CTATCAATAG TCAAAACATA AACAAAAGCT AATTAACTGG CACTGTTGTC ACCTGAGACT 3540
AAGTGGATGT TGTTGGCTGA CATACAGGCT CAGCCAGCAG AGAAAGAATT CTGAATTCCC 3600
CTTGCTGAAC TGAACTATTC TGTTACATAT GGTTGACAAA TCTGTGTGTT ATTTCTTTTC 3660
TACCTACCAT ATTTAAATTT ATGAGTATCA ACCGAGGACA TAGTCAAACC TTCGATGATG 3720
AACATTCCTG ATTTTTTGCC TGATTAATCT CTGTTGAGCT CTACTTGTGG TCATTCAAGA 3780
TTTTATGATG TTGAAAGGAA AAGTGAATAT GACCTTTAAA AATTGTATTT TGGGTGATGA 3840
TAGTCTCACC ACTATAAAAC TGTCAATTAT TGCCTAATGT TAAAGATATC CATCATTGTG 3900
ATTAATTAAA CCTATAATGA GTATTCTTAA TGGAGAATTC TTAATGGATG GATTATCCCC 3960
TGATCTTTTC TTTAAAATTT CTCTGCACAC ACAGGACTTC TCATTTTCCA ATAAATGGGT 4020
GTACTCTGCC CCAATTTCTA GGGAAAAAAA AAAAAAAAAA AAAA

(2) INFORMATION ON SEQ ID NO. 31:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 750 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 31:

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cacttgggca cccccatttt ctaaaaaaat ggaaatctgg agggcaaaaa aggtgtgctg 60
aagggaagtg cctctgatgg cccaaaaacc ttcttccaaa ctagtgtagg aatggaatgg 120
atagcaaatg gatccttttt ggcctccttt ggagcatgcc ttccctatct tatccttggc 180
cccactaaag cagaacgtta cggatatttc tgtttttgcc attggatgcc tatctggcca 240
aacagccttt ccctaattgg aaaatgcagt cctgtttaaa acctttgatt tacgactact 300
tgtacatgct tgctcattac aattttgaca ttttttacat agtgaagacc ccaaacatat 360
cagtgaaaca tgacaagatc ataaagaaca gtatcatatt attatttagt cgcttttaca 420
gtggcaagcc aattttgaaa tatctcattt aaaactcaga cccaattcac tgagttatac 480
ttttaatagc ttcctcagca cactatttcc catgcattaa atatgataaa ataatctatc 540
actgcccatc ggtcttgtaa aaaggaagtc tgaatacaga gcccacaaca ctaaaattgt 600

ttttctagct acaaagtata gcatcatcaa cacagacacg atttggactc cctgacaggt 660
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ccaaaggcct tatttgtcac caccgtcccg
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(2) INFORMATION ON SEQ ID NO. 32:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1620 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 32:

gcaattcccc cctcccacta aacgactccc agtaattatg tttacaaccc attggatgca 60
gtgcagccat tcataagaac cttggtgccc cagaaaaatc tgtccttttt ggtaccaaac 120
ctgaggtctt ttggaagata atgtagaaaa ccactaccta ttgaaggcct gttttggcta 180
atctgtgcaa actctgatga tacctgcctt atgtggattc ttttccacac tgctttcatt 240
tttaagtata aagacttaga aaactagaat aatgctttta caaataatta aaagtatgtg 300

atgttctggg ttttttcctt ctttttagaa ccccgcctcc atttaaaaaa ttaaaaaaaa 360
aaaaaaaact tttaacattt aaaaaataaa aattaacaaa atttcactta ttccaggaca 420
cgctggcatt tggactcaat gaaaagggca cctaaagaaa ataaggctga ctgaatgttt 480
tccataattt tcacacaata acagtccctt tctatccagc ttgccttcca tttatctcta 540
gggttagctt ttcaggcaac atccttggtc attgcccaga aagtacctga gctatcagtg 600
attggaatgg cacaggaaac cgaatcacat gggtgccctc cccttggttt tcaagtatct 660
tggagttgtg cacaaaaatt aggtcatgcc ttcagtgtct tgttctttaa acctaccctt 720
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acatacagca ttgtacatta caatgaaaat gtgtaactta agggtattat atatataaat 1560
acatatatac ctttgtaacc tttatactgt aaataaaaaa gttgctttag tcaaaaaaaa 1620

(2) INFORMATION ON SEQ ID NO. 33:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 2968 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 33:

gaaaaagtag aaggaaacac agttcatata gaagtaaaag aaaaccctga agaggaggag 60
gaggaggaag aagaggaaga agaagatgaa gaaagtgaag aggaggagga agaggaggga 120
gaaagtgaag gcagtgaagg tgatgaggaa gatgaaaagg tgtcagatga gaaggattca 180
gggaagacat tagataaaaa gccaagtaaa gaaatgagct cagattctga atatgactct 240
gatgatgatc ggactaaaga agaaagggct tatgacaaag caaaacggag gattgagaaa 300
cggcgacttg aacatagtaa aaatgtaaac accgaaaagc taagagcccc tattatctgc 360
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gaagctatta atgaacagac taagatgatt aaaaattttg atagagagaa tgtacggatt 540
ccaggaatgc taattattga tactcctggg catgaatctt tcagtaatct gagaaataga 600
ggaagctctc tttgtgacat tgccatttta gttgttgata ttatgcatgg tttggagccc 660
cagacaattg agtctatcaa ccttctcaaa tctaaaaaat gtcccttcat tgttgcactc 720
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gacttaagta tggaaggaag aaaaataggt gtataaaatg ttttccatga gaaaccaaga 2280
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cccaaatttg gatttttatt acagatctaa agctctttcg attttatact gattaaatca 2460
gtactgcagt atttgattaa aaaaaaaaaa gcagattttg tgattcttgg gactttttg 2520
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tctgccatat gcctttaggg cttttataaa atagaaaatt aggcattctg atatttcttt 2640

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agtcacgagt ccattgtaat catcacaatt ctaaaccaaa ctaccaataa agaaaacaga 2760
catccaccag taagcaagct ctgttaggct tccatggtta gtggtagctt ctctcccaca 2820
agttgtcctc ctaggacaag gaattatctt aacaaactaa actatccatc acactacctt 2880
ggtatgccag cacctgggta acagtaggag attttataca ttaatctgat ctgtttaatc 2940
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(2) INFORMATION ON SEQ ID NO. 34:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 6011 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34:

ACGGGGCGCC GGACGACCCG CACATCTTAT CCTCCACGCC CCACTCGCAC TCGGAGCGGG 60
ACCGCCCCGG ACTCCCCCTC GGGCCGGCCA CTCGAGGAGT GAGGAGAGAG GCCGCCGGCC 120
CGGCTTGAGC CGAGCGCAGC ACCCCCCGCG CCCCGCGCCA GAAGTTTGGT TGAACCGGGC 180
TGCCGGGAGA AACTTTTTTC TTTTTTCCCC CTCTCCCGGG AGAGTCTCTG GAGGAGGAGG 240
GGAACTCCCC CGGCCCAAGG CTCGTGGGCT CGGGGTCGCG CGGCCGCAGA AGGGGCGGGG 300
TCCGCCCGCG AGGGGAGGCG CCCCCGGGGA CCCGAGAGGG GGGTGAGGAC CGCGGGCTGC 360
TGGTGCGGCG GCGGCAGCGT GTGCCCCGCG CAGGGGAGGC GCCGCCCCGC TCCCGGCCCG 420
GCTGCGAGGA GGAGGCGGCG GCGGCGCAGG AGGATGTACT TGGTGGCGGG GGACAGGGGG 480
TTGGCCGGCT GCGGGCACCT CCTGGTCTCG CTGCTGGGGC TGCTGCTGCT GCCGGCGCGC 540
TCCGGCACCC GGGCGCTGGT CTGCCTGCCC TGTGACGAGT CCAAGTGCGA GGAGCCCAGG 600
AACCGCCCGG GGAGCATCGT GCAGGGCGTC TGCGGCTGCT GCTACACGTG CGCCAGCCAG 660
GGGAACGAGA GCTGCGGCGG CACCTTCGGG ATTTACGGAA CCTGCGACCG GGGGCTGCGT 720
TGTGTCATCC GCCCCCCGCT CAATGGCGAC TCCCTCACCG AGTACGAAGC GGGCGTTTGC 780
GAAGATGAGA ACTGGACTGA TGACCAACTG CTTGGTTTTA AACCATGCAA TGAAAACCTT 840
ATTGCTGGCT GCAATATAAT CAATGGGAAA TGTGAATGTA ACACCATTCG AACCTGCAGC 900
AATCCCTTTG AGTTTCCAAG TCAGGATATG TGCCTTTCAG CTTTAAAGAG AATTGAAGAA 960
GAGAAGCCAG ATTGCTCCAA GGCCCGCTGT GAAGTCCAGT TCTCTCCACG TTGTCCTGAA 1020
GATTCTGTTC TGATCGAGGG TTATGCTCCT CCTGGGGAGT GCTGTCCCTT ACCCAGCCGC 1080
TGCGTGTGCA ACCCCGCAGG CTGTCTGCGC AAAGTCTGCC AGCCGGGAAA CCTGAACATA 1140
CTAGTGTCAA AAGCCTCAGG GAAGCCGGGA GAGTGCTGTG ACCTCTATGA GTGCAAACCA 1200
GTTTTCGGCG TGGACTGCAG GACTGTGGAA TGCCCTACTG TTCAGCAGAC CGCGTGTCCC 1260
CCGGACAGCT ATGAAACTCA AGTCAGACTA ACTGCAGATG GTTGCTGTAC TTTGCCAACA 1320
AGATGCGAGT GTCTCTCTGG CTTATGTGGT TTCCCCGTGT GTGAGGTGGG ATCCACTCCC 1380
CGCATAGTCT CTCGTGGCGA TGGGACACCT GGAAAGTGCT GTGATGTCTT TGAATGTGTT 1440
AATGATACAA AGCCAGCCTG CGTATTTAAC AATGTGGAAT ATTATGATGG AGACATGTTT 1500
CGAATGGACA ACTGTCGGTT CTGTCGATGC CAAGGGGGCG TTGCCATCTG CTTCACCGCC 1560
CAGTGTGGTG AGATAAACTG CGAGAGGTAC TACGTGCCCG AAGGAGAGTG CTGCCCAGTG 1620
TGTGAAGATC CAGTGTATCC TTTTAATAAT CCCGCTGGCT GCTATGCCAA TGGCCTGATC 1680
CTTGCCCACG GAGACCGGTG GCGGGAAGAC GACTGCACAT TCTGCCAGTG CGTCAACGGT 1740
GAACGCCACT GCGTTGCGAC CGTCTGCGGA CAGACCTGCA CAAACCCTGT GAAAGTGCCT 1800
GGGGAGTGTT GCCCTGTGTG CGAAGAACCA ACCATCATCA CAGTTGATCC ACCTGCATGT 1860
GGGGAGTTAT CAAACTGCAC TCTGACACGG AAGGACTGCA TTAATGGTTT CAAACGCGAT 1920
CACAATGGTT GTCGGACCTG TCAGTGCATA AACACCCAGG AACTATGTTC AGAACGTAAA 1980
CAAGGCTGCA CCTTGAACTG TCCCTTCGGT TTCCTTACTG ATGCCCAAAA CTGTGAGATC 2040
TGTGAGTGCC GCCCAAGGCC CAAGAAGTGC AGACCCATAA TCTGTGACAA GTATTGTCCA 2100
CTTGGATTGC TGAAGAATAA GCACGGCTGT GACATCTGTC GCTGTAAGAA ATGTCCAGAG 2160
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TGCAAGTGCA GAGAGGCCTC TGCTTCAGCT GGGCCACCCA TCCTGTCGGG CACTTGTCTC 2280
ACCGTGGATG GTCATCATCA TAAAAATGAG GAGAGCTGGC ACGATGGGTG CCGGGAATGC 2340
TACTGTCTCA ATGGACGGGA AATGTGTGCC CTGATCACCT GCCCGGTGCC TGCCTGTGGC 2400
AACCCCACCA TTCACCCTGG ACAGTGCTGC CCATCATGTG CAGATGACTT TGTGGTGCAG 2460
AAGCCAGAGC TCAGTACTCC CTCCATTTGC CACGCCCCTG GAGGAGAATA CTTTGTGGAA 2520
GGAGAAACGT GGAACATTGA CTCCTGTACT CAGTGCACCT GCCACAGCGG ACGGGTGCTG 2580
TGTGAGACAG AGGTGTGCCC ACCGCTGCTC TGCCAGAACC CCTCACGCAC CCAGGATTCC 2640
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GACGTTTGTA CCAGCTGCAT CTGCATTGAT AGCGTAATTA GCTGTTTCTC TGAGTCCTGC 2820
CCTTCTGTAT CCTGTGAAAG ACCTGTCTTG AGAAAAGGCC AGTGTTGTCC CTACTGCATA 2880
AAAGACACAA TTCCAAAGAA GGTGGTGTGC CACTTCAGTG GGAAGGCCTA TGCCGACGAG 2940
GAGCGGTGGG ACCTTGACAG CTGCACCCAC TGCTACTGCC TGCAGGGCCA GACCCTCTGC 3000
TCGACCGTCA GCTGCCCCCC TCTGCCCTGT GTTGAGCCCA TCAACGTGGA AGGAAGTTGC 3060
TGCCCAATGT GTCCAGAAAT GTATGTCCCA GAACCAACCA ATATACCCAT TGAGAAGACA 3120
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GACTGCAAGA AAGGAACCAG AGTCCAGGTG GACAGTTCCC AGAGAATGCT AAGAATTGCA 3480

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GACGACTAAA TCTGCTCTAA AAAGTAAACT AGAATTTGTG CACTTGCTTA GTGGATTGTA 3660
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ATGTGCAGAA CAAGCATTCC CACTTTTCCT CAAGATAACT GACCAAGTGT TTTCTTAGAA 3780
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TGGTCAGCTT GGCTCGGGGA GAAACCTGGT AACATAAAAG CAGTTCAGTG GCCCAGAGGT 3960
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GCAGGAAACA AAAAAGGCCT TGCGACCCAG CTGCCATAAC CACCTTAGAA CTACCAGACG 4080
AGCACATCAG AACCCTTTGA CAGCCATCCC AGGTCTAAAG CCACAAGTTT CTTTTCTATA 4140
CAGTCACAAC TGCAGTAGGC AGTGAGGAAG CCAGAGAAAT GCGATAGCGG CATTTCTCTA 4200
AAGCGGGTTA TTAAGGATAT ATACAGTTAC ACTTTTTGCT GCTTTTATTT TCTTCCAAGC 4260
CAATCAATCA GCCAGTTCCT AGCAGAGTCA GCACATGAAC AAGATCTAAG TCATTTCTTG 4320
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GAACACCAGG CATTTCCAGG GGCTATATTT CACTGTTTGT TGTTGCTTTG TTCTGTTATA 4440
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GACTGTTTGG GGATTCTTTT TCCTTATTAT ATACTGATTC TACAAAATAG AAACTACTTC 4560
ATTTTAATTG TATATTATTC AAGCACCTTT GTTGAAGCTC AAAAAAAATG ATGCCTCTTT 4620
AAACTTTAGC AATTATAGGA GTATTTATGT AACTATCTTA TGCTTCAAAA AACAAAAGTA 4680
TTTGTGTGCA TGTGTATATA ATATATATAT ATACATATAT ATTTATACAC ATACAATTTA 4740
TGTTTTCCTG TTGAATGTAT TTTTATGAGA TTTTAACCAG AACAAAGGCA GATAAACAGG 4800
CATTCCATAG CAGTGCTTTT GATCACTTAC AAATTTTTTG AATAACACAA AATCTCATTC 4860
TACCTGCAGT TTAATTGGAA AGATGTGTGT GTGAGAGTAT GTATGTGTGT GTGTGTGTGT 4920
GTGTGTGCGC GCGCACGCAC GCCTTGAGCA GTCAGCATTG CACCTGCTAT GGAGAAGGGT 4980
ATTCCTTTAT TAAAATCTTC CTCATTTGGA TTTGCTTTCA GTTGGTTTTC AATTTGCTCA 5040
CTGGCCAGAG ACATTGATGG CAGTTCTTAT CTGCATCACT AATCAGCTCC TGGATTTTTT 5100
TTTTTTTTTT TCAAACAATG GTTTGAAACA ACTACTGGAA TATTGTCCAC AATAAGCTGG 5160
AAGTTTGTTG TAGTATGCCT CAAATATAAC TGACTGTATA CTATAGTGGT AACTTTTCAA 5220
ACAGCCCTTA GCACTTTTAT ACTAATTAAC CCATTTGTGC ATTGAGTTTT CTTTTAAAAA 5280
TGCTTGTTGT GAAAGACACA GATACCCAGT ATGCTTAACG TGAAAAGAAA ATGTGTTCTG 5340
TTTTGTAAAG GAACTTTCAA GTATTGTTGT AAATACTTGG ACAGAGGTTG CTGAACTTTA 5400
AAAAAAATTA ATTTATTATT ATAATGACCT AATTTATTAA TCTGAAGATT AACCATTTTT 5460
TTGTCTTAGA ATATCAAAAA GAAAAAGAAA AAGGTGTTCT AGCTGTTTGC ATCAAAGGAA 5520
AAAAAGATTT ATTATCAAGG GGCAATATTT TTATCTTTTC CAAAATAAAT TTGTTAATGA 5580
TACATTACAA AAATAGATTG ACATCAGCCT GATTAGTATA AATTTTGTTG GTAATTAATC 5640
CATTCCTGGC ATAAAAAGTC TTTATCAAAA AAAATTGTAG ATGCTTGCTT TTTGTTTTTT 5700
CAATCATGGC CATATTATGA AAATACTAAC AGGATATAGG ACAAGGTGTA AATTTTTTTA 5760
TTATTATTTT AAAGATATGA TTTATCCTGA GTGCTGTATC TATTACTCTT TTACTTTGGT 5820
TCCTGTTGTG CTCTTGTAAA AGAAAAATAT AATTTCCTGA AGAATAAAAT AGATATATGG 5880
CACTTGGAGT GCATCATAGT TCTACAGTTT GTTTTTGTTT TCTTCAAAAA AGCTGTAAGA 5940
GAATTATCTG CAACTTGATT CTTGGCAGGA AATAAACATT TTGAGTTGAA ATCAAAAAAA 6000
AAAAAAAAAA A

(2) INFORMATION ON SEQ ID NO. 34a:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1036 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34a:

Protein sequence derived from Seq. ID No. 34, Start: 454bp, Stop: 3559bp

MYLVAGDRGL AGCGHLLVSL LGLLLLPARS GTRALVCLPC DESKCEEPRN RPGSIVQGVC 60
GCCYTCASQG NESCGGTFGI YGTCDRGLRC VIRPPLNGDS LTEYEAGVCE DENWTDDQLL 120
GFKPCNENLI AGCNIINGKC ECNTIRTCSN PFEFPSQDMC LSALKRIEEE KPDCSKARCE 180
VQFSPRCPED SVLIEGYAPP GECCPLPSRC VCNPAGCLRK VCQPGNLNIL VSKASGKPGE 240
CCDLYECKPV FGVDCRTVEC PTVQQTACPP DSYETQVRLT ADGCCTLPTR CECLSGLCGF 300
PVCEVGSTPR IVSRGDGTPG KCCDVFECVN DTKPACVFNN VEYYDGDMFR MDNCRFCRCQ 360
GGVAICFTAQ CGEINCERYY VPEGECCPVC EDPVYPFNNP AGCYANGLIL AHGDRWREDD 420
CTFCQCVNGE RHCVATVCGQ TCTNPVKVPG ECCPVCEEPT IITVDPPACG ELSNCTLTRK 480
DCINGFKRDH NGCRTCQCIN TQELCSERKQ GCTLNCPFGF LTDAQNCEIC ECRPRPKKCR 540
PIICDKYCPL GLLKNKHGCD ICRCKKCPEL SCSKICPLGF QQDSHGCLIC KCREASASAG 600
PPILSGTCLT VDGHHHKNEE SWHDGCRECY CLNGREMCAL ITCPVPACGN PTIHPGQCCP 660
SCADDFVVQK PELSTPSICH APGGEYFVEG ETWNIDSCTQ CTCHSGRVLC ETEVCPPLLC 720
QNPSRTQDSC CPQCTDQPFR PSLSRNNSVP NYCKNDEGDI FLAAESWKPD VCTSCICIDS 780
VISCFSESCP SVSCERPVLR KGQCCPYCIK DTIPKKVVCH FSGKAYADEE RWDLDSCTHC 840
YCLQGQTLCS TVSCPPLPCV EPINVEGSCC PMCPEMYVPE PTNIPIEKTN HRGEVDLEVP 900
LWPTPSENDI VHLPRDMGHL QVDYRDNRLH PSEDSSLDSI ASVVVPIIIC LSIIIAFLFI 960
NQKKQWIPLL CWYRTPTKPS SLNNQLVSVD CKKGTRVQVD SSQRMLRIAE PDARFSGFYS 1020
MQKQNHLQAD NFYQTV

(2) INFORMATION ON SEQ ID NO. 35:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 716 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35:

```
gcagtacctg gagtgtcctg caggggaaa gcgaaccggg ccctgaagtc cggggcagtc 60
acccggggct cctgggccgc tctgccgggc tggggctgag cagcgatcct gctttgtccc 120
agaagtccag agggatcagc cccagaacac accctcctcc ccgggacgcc gcagctttct 180
ggaggctgag gaaggcatga agagtgggct ccacctgctg gccgactgag aaaagaattt 240
ccagaactcg gtcctatttt acagattgag aaactatggt tcaagaagag aggacggggc 300
ttgagggaat ctcctgattc tccttatatg acctcaaact gaccatacta aacagtgtag 360
aaggtctttt taaggctcta aatgtcaggg tctcccatcc cctgatgcct gacttgtaca 420
gtcagtgtgg agtagacggt ttcctccacc cagggttgac tcaggggat gatctgggtc 480
ccattctggt cttaagaccc caaacaaggg ttttttcagc tccaggatct ggagcctcta 540
tctggttagt gtcgtaacct ctgtgtgcct cccgttaccc catctgtcca gtgagctcag 600
cccccatcca cctaacaggg tggccacagg gattactgag ggttaagacc ttagaactgg 660
gtctagcacc cgataagagc tcaataaatg ttgttccttt ccacatcaaa aaaaaa
```

(2) INFORMATION ON SEQ ID NO. 36:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 395 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 36:

```
ccaatacttc attcttcatt ggtggagaag attgtagact tctaagcatt ttccaaataa 60
aaaagctatg atttgatttc caacttttaa acattgcatg tcctttgcca tttactacat 120
tctccaaaaa aaccttgaaa tgaagaaggc caccttaaa atacttcaga ggctgaaaat 180
atgattatta cattggaatc ctttagccta tgtgatattt ctttaacttt gcactttcac 240
gcccagtaaa accaaagtca gggtaaccaa tgtcatttta caaaatgtta aaaccctaat 300
tgcagttcct tttttaaatt attttaaaga ttacttaaca acattagaca gtgcaaaaaa 360
agaagcaagg aaagcattct taattctacc atcct
```

(2) INFORMATION ON SEQ ID NO. 37:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 134 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 37:

ccctcgagcg gccgcccggg caggtacttt taccaccgaa ttgttcactt gactttaaga 60
aacccataaa gctgcctggc tttcagcaac aggcctatca acaccatggt gagtctccat 120
aagggacacc gtgt

(2) INFORMATION ON SEQ ID NO. 38:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 644 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 38:

```
aagcctgttg tcatggggga ggtggtggcg cttggtggcc actggcggcc gaggtagagg 60
cagtggcgct tgagttggtc gggggcagcg gcagatttga ggcttaagca acttcttccg 120
gggaagagtg ccagtgcagc cactgttaca attcaagatc ttgatctata tccatagatt 180
ggaatattgg tgggccagca atcctcagac gcctcactta ggacaaatga ggaaactgag 240
gcttggtgaa gttacgaaac ttgtccaaaa tcacacaact tgtaaagggc acagccaaga 300
ttcagagcca ggctgtaaaa attaaaatga acaaattacg gcaaagtttt aggagaaaga 360
aggatgttta tgttccagag gccagtcgtc cacatcagtg gcagacagat gaagaaggcg 420
ttcgcaccgg aaaatgtagc ttcccggtta agtaccttgg ccatgtagaa gttgatgaat 480
caagaggaat gcacatctgt gaagatgctg taaaaagatt gaaagctgaa aggaagttct 540
tcaaaggctt ctttggaaaa actggaaaga aagcagttaa agcagtttct gtgggtctaa 600
gcagatggac tcagaggttg tggatgaaaa actaaggacc tcat
```

(2) INFORMATION ON SEQ ID NO. 39:

(i) SEQUENCE CHARACTERISTIC:
- (A) LENGTH: 657 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:
- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 39:

```
ctttttgttt gggttttcca atgtagatgt ctcagtgaaa tgtgcagata tactttgttc 60
cttatatggt caccagtgtt aattatggac aaatacatta aaacaagggt tcctggccca 120
gcctcccatc taatctcttt gatactcttg gaatctaagt ctgaggagcg atttctgaat 180
tagccagtgt tgtaccaact ttctgttagg aattgtatta gaataacctt tctttttcag 240
acctgctcag tgagacatct tggggaatga agtaggaaaa tagacatttg gtggaaaaac 300
agcaaaatga gaacattaaa aagactcatt caagtatgag tataaagggc atggaaattc 360
tggtcctttg agcaaaatga gaagaaaaaa ttctgctcag cagtattcac tgtgttaaga 420
ttttttgttt tttacacgaa tggaaaaatg atgtgtaagt ggtatagatt ttaatcagct 480
aacagtcact ccagagattt tgatcagcac caattcctat agtagtaagt atttaaaagt 540
taagaaatac tactacattt aacattataa agtagagttc tggacataac tgaaaattag 600
atgtttgctt caatagaaat ttgttcccac ttgtattttc aacaaaatta tcggaac
```

(2) INFORMATION ON SEQ ID NO. 40:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1328 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 40:

acaattttaa aataactagc aattaatcac agcatatcag gaaaaagtac acagtgagtt 60
ctggttagtt tttgtaggct cattatggtt agggtcgtta agatgtatat aagaacctac 120
ctatcatgct gtatgtatca ctcattccat tttcatgttc catgcatact cgggcatcat 180
gctaatatgt atccttttaa gcactctcaa ggaaacaaaa gggcctttta tttttataaa 240
ggtaaaaaaa attccccaaa tattttgcac tgaatgtacc aaaggtgaag ggacattaca 300
atatgactaa cagcaactcc atcacttgag aagtataata gaaaatagct tctaaatcaa 360
acttccttca cagtgccgtg tctaccacta caaggactgt gcatctaagt aataattttt 420
taagattcac tatatgtgat agtatgatat gcatttattt aaaatgcatt agactctctt 480
ccatccatca aatactttac aggatggcat ttaatacaga tatttcgtat ttcccccact 540
gctttttatt tgtacagcat cattaaacac taagctcagt taaggagcca tcagcaacac 600
tgaagagatc agtagtaaga attccatttt ccctcatcag tgaagacacc acaaattgaa 660
actcagaact atatttctaa gcctgcattt tcactgatgc ataatttttct tagtaatatt 720
aagagacagt ttttctatgg catctccaaa actgcatgac atcactagtc ttacttctgc 780
ttaattttat gagaaggtat tcttcatttt aattgctttt gggattactc cacatctttg 840
tttatttctt gactaatcag attttcaata gagtgaagtt aaattgggggg tcataaaagc 900
attggattga catatggttt gccagcctat gggtttacag gcattgccca aacatttctt 960
tgagatctat atttataagc agccatggaa ttcctattat gggatgttgg caatcttaca 1020
ttttatagag gtcatatgca tagttttcat aggtgttttg taagaactga ttgctctcct 1080
gtgagttaag ctatgtttac tactgggacc ctcaagagga ataccactta tgttacactc 1140
ctgcactaaa ggcacgtact gcagtgtgaa gaaatgttct gaaaaagggt tatagaaatc 1200
tggaaataag aaaggaagag ctctctgtat tctataattg gaagagaaaa aaagaaaaac 1260
ttttaactgg aaatgttagt ttgtacttat tgatcatgaa tacaagtata tatttaattt 1320

(2) INFORMATION ON SEQ ID NO. 41:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 987 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 41:

aacagagact ggcacaggac ctcttcattg caggaagatg gtagtgtagg caggtaacat 60
tgagctcttt tcaaaaaagg agagctcttc ttcaagataa ggaagtggta gttatggtgg 120
taacccccgg ctatcagtcc ggatggttgc caccctcct gctgtaggat ggaagcagcc 180
atggagtggg agggaggcgc aataagacac ccctccacag agcttggcat catgggaagc 240
tggttctacc tcttcctggc tcctttgttt aaaggcctgg ctgggagcct tccttttggg 300
tgtctttctc ttctccaacc aacagaaaag actgctcttc aaaggtggag ggtcttcatg 360
aaacacagct gccaggagcc caggcacagg gctgggggcc tggaaaaagg agggcacaca 420

ggaggaggga ggagctggta gggagatgct ggctttacct aaggtctcga aacaaggagg 480
gcagaatagg cagaggcctc tccgtcccag gcccattttt gacagatggc gggacggaaa 540
tgcaatagac cagcctgcaa gaaagacatg tgttttgatg acaggcagtg tggccgggtg 600
gaacaagcac aggccttgga atccaatgga ctgaatcaga accctaggcc tgccatctgt 660
cagccgggtg acctgggtca attttagcct ctaaaagcct cagtctcctt atctgcaaaa 720
tgaggcttgt gatacctgtt ttgaagggtt gctgagaaaa ttaaagataa gggtatccaa 780
aatagtctac ggccatacca ccctgaacgt gcctaatctc gtaagctaag cagggtcagg 840
cctggttagt acctggatgg ggagagtatg gaaaacatac ctgcccgcag ttggagttgg 900
actctgtctt aacagtagcg tggcacacag aaggcactca gtaaatactt gttgaataaa 960
tgaagtagcg atttggtgtg aaaaaaa

(2) INFORMATION ON SEQ ID NO. 42:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 956 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 42:

```
cggacggtgg ggcggacgcg tgggtgcagg agcagggcgg ctgccgactg ccccaaccaa 60
ggaaggagcc cctgagtccg cctgcgcctc catccatctg tccggccaga gccggcatcc 120
ttgcctgtct aaagccttaa ctaagactcc cgccccgggc tggccctgtg cagaccttac 180
tcaggggatg tttacctggt gctcgggaag ggaggggaag gggccgggga gggggcacgg 240
caggcgtgtg gcagccacac gcaggcggcc agggcggcca gggacccaaa gcaggatgac 300
cacgcacctc cacgccactg cctcccccga atgcatttgg aaccaaagtc taaactgagc 360
tcgcagcccc cgcgccctcc ctccgcctcc catcccgctt agcgctctgg acagatggac 420
gcaggccctg tccagccccc agtgcgctcg ttccggtccc cacagactgc cccagccaac 480
gagattgctg gaaaccaagt caggccaggt gggcggacaa aagggccagg tgcggcctgg 540
ggggaacgga tgctccgagg actggactgt ttttttcaca catcgttgcc gcagcggtgg 600
gaaggaaagg cagatgtaaa tgatgtgttg gtttacaggg tatatttttg ataccttcaa 660
tgaattaatt cagatgtttt acgcaaggaa ggacttaccc agtattactg ctgctgtgct 720
tttgatctct gcttaccgtt caagaggcgt gtgcaggccg acagtcggtg accccatcac 780
tcgcaggacc aaggggggcgg ggactgctgg ctcacgcccc gctgtgtcct ccctcccctc 840
ccttccttgg gcagaatgaa ttcgatgcgt attctgtggc cgccatctgc gcagggtggt 900
ggtattctgt catttacaca cgtcgttcta attaaaaagc gaattatact ccaaaa
```

(2) INFORMATION ON SEQ ID NO. 43:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 536 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 43:

```
aaataaacac ttccataaca ttttgttttc gaagtctatt aatgcaatcc cactttttc 60
cccctagttt ctaaatgtta aagagagggg aaaaaaggct caggatagtt ttcacctcac 120
agtgttagct gtcttttatt ttactcttgg aaatagagac tccattaggg ttttgacatt 180
ttgggaaccc agttttacca ttgtgtcagt aaaacaataa gatagtttga gagcatatga 240
tctaaataaa gacatttgaa gggttagttt gaattctaaa agtaggtaat agccaaatag 300
cattctcatc ccttaacaga caaaaactta tttgtcaaaa gaattagaaa aggtgaaaat 360
atttttcca gatgaaactt gtgccacttc caattgacta atgaaataca aggagacaga 420
ctggaaaaag tgggttatgc cacctttaaa acccttttctg gtaaatatta tggtagctaa 480
agggtggttt ccccggcacc tggacctgga caggtagggt tccgtggtta accagt
```

(2) INFORMATION ON SEQ ID NO. 44:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1630 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 44:

```
ggggagggac gagtatggaa ccctgaaggt agcaagtcca ggcactggcc tgaccatccg 60
gctccctggg caccaagtcc caggcaggag cagctgtttt ccatcccttc ccagacaagc 120
tctattttta tcacaatgac ctttagagag gtctcccagg ccagctcaag gtgtcccact 180
atcccctctg gagggaagag gcaggaaaat tctccccggg tccctgtcat gctactttct 240
ccatcccagt tcagactgtc caggacatct tatctgcagc cataagagaa ttataaggca 300
gtgatttccc ttaggcccag gacttgggcc tccagctcat ctgttccttc tgggcccatt 360
catggcaggt tctgggctca aagctgaact ggggagagaa gagatacaga gctaccatgt 420
gactttacct gattgccctc agtttggggt tgcttattgg gaaagagaga gacaaagagt 480
tacttgttac gggaaatatg aaaagcatgg ccaggatgca tagaggagat tctagcaggg 540
gacaggattg gctcagatga cccctgaggg ctcttccagt cttgaaatgc attccatgat 600
attaggaagt cgggggtggg tggtggtggt gggctagttg ggtttgaatt taggggccga 660
tgagcttggg tacgtgagca gggtgttaag ttagggtctg cctgtatttc tggtcccctt 720
ggaaatgtcc ccttcttcag tgtcagacct cagtcccagt gtccatatcg tgcccagaaa 780
agtagacatt atcctgcccc atcccttccc cagtgcactc tgacctagct agtgcctggt 840
gcccagtgac ctgggggagc ctggctgcag gccctcactg gttccctaaa ccttggtggc 900
tgtgattcag gtccccaggg gggactcagg gaggaatatg gctgagttct gtagtttcca 960
gagttggctg gtagagcctt ctagaggttc agaatattag cttcaggatc agctgggggt 1020
atggaattgg ctgaggatca aacgtatgta ggtgaaagga taccaggatg ttgctaaagg 1080
tgagggacag tttgggtttg ggacttacca gggtgatgtt agatctggaa cccccaagtg 1140
aggctggagg gagttaaggt cagtatggaa gatagggttg ggacagggtg ctttggaatg 1200
aaagagtgac cttagagggc tccttgggcc tcaggaatgc tcctgctgct gtgaagatga 1260
gaaggtgctc ttactcagtt aatgatgagt gactatattt accaaagccc ctacctgctg 1320
ctgggtccct tgtagcacag gagactgggg ctaagggccc ctcccaggga agggacacca 1380
tcaggcctct ggctgaggca gtagcataga ggatccattt ctacctgcat ttcccagagg 1440
actagcagga ggcagccttg agaaaccggc agttcccaag ccagcgcctg gctgttctct 1500
cattgtcact gccctctccc caacctctcc tctaacccac tagagattgc ctgtgtcctg 1560
cctcttgcct cttgtagaat gcagctctgg ccctcaataa atgcttcctg cattcatctg 1620
caaaaaaaaa
```

(2) INFORMATION ON SEQ ID NO. 45:

(i) SEQUENCE CHARACTERISTIC:
- (A) LENGTH: 169 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 45:

tcttttgctt ttagcttttt atttttgtat taacaggagt cttattacac ataggtctga 60
taaaactggt ttatgatctt cagtctgatt ccagtgctgc ataactagat aacgtatgaa 120
ggaaaaacga cgacgaacaa aaaagtaagt gcttggaaga cttagttga

(2) INFORMATION ON SEQ ID NO. 46:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 769 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 46:

tgcaggtcat atttactatc ggcaataaaa ggaagcaaag cagtattaag cagcggtgga 60
atttgtcgct ttcacttttt ataaagtgct acataaaatg tcatatttcc aaatttaaaa 120
acataactcc agttcttacc atgagaacag catggtgatc acgaaggatc ttcttgaaaa 180
aaacaaaaac aaaaacaaaa aacaatgatc tcttctgggt atcacatcaa atgagataca 240
aaggtgtact aggcaatctt agagatctgg caacttattt tatatataag gcatctgtga 300
ccaagagacg ttatgaatta aatgtacaaa tgtattatgt ataaatgtat taaatgcaag 360
cttcatataa tgacaccaat gtctctaagt tgctcagaga tcttgactgg ctgtggccct 420
ggccagctcc tttcctgata gtctgattct gccttcatat ataggcagct cctgatcatc 480
catgccagtg aatgagaaaa caagcatgga atatataaac tttaacatta aaaaatgttt 540
tattttgtaa taaaatcaaa tttcccattg aaaccttcaa aaactttgca gaatgaggtt 600
ttgatatatg tgtacaagta gtaccttctt agtgcaagaa aacatcatta tttctgtctg 660
cctgcctttt tgtttttaaa aatgaagact atcattgaaa caagtttgtc ttcagtatca 720
ggacatgttg acggagagga aaggtaggaa agggttaggg atagaagcc

(2) INFORMATION ON SEQ ID NO. 47:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 2529 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 47:

tttagttcat agtaatgtaa aaccatttgt ttaattctaa atcaaatcac tttcacaaca 60
gtgaaaatta gtgactggtt aaggtgtgcc actgtacata tcatcatttt ctgactgggg 120
tcaggacctg gtcctagtcc acaagggtgg caggaggagg gtggaggcta agaacacaga 180
aaacacacaa aagaaaggaa agctgccttg gcagaaggat gaggtggtga gcttgccgag 240
ggatggtggg aaggggctc cctgttgggg ccgagccagg agtcccaagt cagctctcct 300
gccttactta gctcctggca gagggtgagt ggggacctac gaggttcaaa atcaaatggc 360
atttggccag cctggcttta ctaacaggtt cccagagtgc ctctgttggc tgagctctcc 420
tgggctcact ccatttcatt gaagagtcca aatgattcat tttcctaccc acaacttttc 480
attattcttc tggaaaccca tttctgttga gtccatctga cttaagtcct ctctccctcc 540
actagttggg gccactgcac tgaggggggt cccaccaatt ctctctagag aagagacact 600
ccagaggccc ctgcaacttt gcggatttcc agaaggtgat aaaaagagca ctcttgagtg 660
ggtgcccagg aatgtttaaa atctatcagg cacactataa agctggtggt ttcttcctac 720
caagtggatt cggcatatga accacctact caatacttta tattttgtct gtttaaacac 780
tgaactctgg tgttgacagg tacaaaggag aagagatggg gactgtgaag aggggagggc 840
ttccctcatc ttcctcaaga tctttgtttc cataaactat gcagtcataa ttgagaaaaa 900
gcaatagatg gggcttccta ccatttgttg gttattgctg gggttagcca ggagcagtgt 960
ggatggcaaa gtaggagaga ggcccagagg aaagcccatc tccctccagc tttggggtct 1020
ccagaaagag gctggatttc tgggatgaag cctagaaggc agagcaagaa ctgttccacc 1080
aggtgaacag tcctacctgc ttggtaccat agtccctcaa taagattcag aggaagaagc 1140
ttatgaaact gaaaatcaaa tcaaggtatt gggaagaata atttcccctc gattccacag 1200
gagggaagac cacacaatat cattgtgctg gggctcccca aggccctgcc acctggcttt 1260
acaaatcatc aggggttgcc tgcttggcag tcacatgctt ccctggtttt agcacacata 1320
caaggagttt tcagggaact ctatcaagcc ataccaaaat cagggtcaca tgtgggtttc 1380
ccctttcctt gcctcttcat aaaagacaac ttggcttctg aggatggtgg tcttttgcat 1440
gcagttgggc tgacctgaca aagcccccag tttcctgtgg caggttctgg gagaggatgc 1500
attcaagctt ctgcagccta ggggacaggg ctgcttgttc agttattact gcctcggagc 1560

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tccaaatccc accaaagtcc tgactccagg tctttcctaa tgcacagtag tcagtctcag 1620
cttcggcagt attctcggct gtatgttctc tggcagagag aggcagatga acatagtttt 1680
agggagaaag ctgatgggaa acctgtgagt taagccacat gtctcaccag gaataattta 1740
tgccaggaaa ccaggaagtc attcaagttg ttctctgagg ccaaagacac tgagcacagc 1800
ccagagccaa taaaagatct ttgagtctct ggtgaattca cgaagtgacc ccagctttag 1860
ctactgcaat tatgattttt atgggacagc aatttcttgc atctctacag aggaagaaga 1920
gggggagtgg gaggggaagg aaagagaaca gagcggcact gggatttgaa aggggaacct 1980
ctctatctga ggagccccca ctggcttcag aagcaactta ccaaggggta tttaaagaca 2040
tgaaaatttc cagaaatacc atttggtgca tccctttgtt tctgtaatat taaactcagg 2100
tgaaattata ctctgacagt ttctctcttt ctgcctcttc cctctgcaga gtcaggacct 2160
gcagaactgg ctgaaacaag atttcatggt gtcacccatg agagatgact caatgccaag 2220
gcctgaagtt atagagtgtt tacagcggtg gcgatattca ggggtcatcg ccaactggtc 2280
tcgagttcca aagctctgat gaagaaacaa gactccttga tgtgttactg atcccactga 2340
ttccaggagt caagattagc caggaagcca aacaccagga gttggggtgg cacgtcacca 2400
gtccagagcc ctgccacgga tgtacgcagg agcccagcat taggcaatca ggagccagaa 2460
catgatcacc agggccacaa ataggaagag gcgtgacagg aactgctcgt ccacatacct 2520
ggggtgtcc
```

(2) INFORMATION ON SEQ ID NO. 48:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1553 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 48:

```
ttttttttt ttttgattt ctgggacaat taagctttat ttttcatata tatatatatt 60
ttcatatata tatatacata catatataaa ggaaacaatt tgcaaattta cacacctgac 120
aaaaccatat atacacacat atgtatgcat acacacagac agacacacac acccgaagct 180
ctagccaggc ccgttttcca tccctaagta ccattctctc atttgggccc ttctagggtt 240
ggggccctga gcttggtttg tagaagtttg gtgctaatat aaccatagct ttaatcccca 300
tgaaggacag tgtagacctc atctttgtct gctccccgct gcctttcagt tttacgtgat 360
ccatcaagag ggctatggga gccaagtgaa cacgggggat tgaggctaat tcacctgaac 420
tcgaaaacag cgcccagctt cctcaccgca ggcacgcgtc ttttcttttt ttttcctcga 480
gacggagtct cgctgtgttg cccaggctgg agtgcagtgg cacggtctcg gctcactgca 540
agctccacct cctggattca taccattctc ctgcttcagc cttccgagta gctgggacta 600
taggtgccaa ccactacgcc tagctaattt ttttttgtat ttttagtaga gacagggttt 660
caccgtgtta gccaggatgg tctcgtcctg actttgtgat ccgcccgcct cggcctccca 720
aagtgctggg attacaggcg tgagccacca cacctggccc cggcacgtat cttttaagga 780
atgacaccag ttcctggctt ctgaccaaag aaaaaatgtc acaggagact ttgaagaggc 840
agacaggagg gtggtggcag caacactgca gctgcttctg gatgctgctg gggtgctctc 900
cggagcgggt gtgaacagcg cacttcaaca tgagcaggcg cctggctccg gtgtgtcctc 960
acttcagtgg tgcacctgga tggtggaagc cagcctttgg ggcaggaaac cagctcagag 1020
aggctaccca gctcagctgc tggcaggagc caggtattta cagccataat gtgtgtaaag 1080
aaaaaacacg ttctgcaaga aactctccta cccgctcggg agactggggc tccttgcttg 1140
ggatgagctt cactcaacgt ggagatggtg gtggactggt ccctgaaaag cgggccttgc 1200
agggccaagt gaggtcctca  ggtcctaac ccagtggccc tctgaaaggg ggtgtgcagg 1260
cgaggggagc aggaggcttc tctctagtcc ctttggaggc tttggctgag agaagagtga 1320
gcagggagct gggaatggtc caggcaggga agggagctga agtgattcgg ggctaatgcc 1380
tcagatcgat gtatttctct ccctggtctc ccggagccct cttgtcaccg ctgctgccct 1440
gcaggaggcc catctcttct gggagcttat ctgacttaac ttcaactaca agttcgctct 1500
tacgagaccg ggggtagcgt gatctcctgc ttccctgagc gcctgcacgg cag
```

(2) INFORMATION ON SEQ ID NO. 49:

(i) SEQUENCE CHARACTERISTIC:
- (A) LENGTH: 921 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:
- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 49:

```
ctgtggtccc agctactcag gaggctgagg cgggaggatt gcttgagccc aggagttgga 60
tgttgcagtg agccaagatc gcaccattgc cctccactct gggccacgga gcaataccct 120
gtctcagaaa acaaacaaca aaaagcagaa acgctgaagg ggtcggttta cgggaaaacc 180
gcctgtcaga acacttggct actcctaccc cagatcagtg gacctgggaa tgagggttgg 240
tcccgggagg cttttctcca agctgttgcc accagacccg ccatgggaac cctggccaca 300
gaagcctccc ggggagtgag ccagagcctg gaccgctgtg ctgatgtgtc tggggtggag 360
ggagggtggg gagtgtgcaa gggtgtgtgt gtgcccgggg ggtgttcatg ggcaagcatg 420
tgcgtgcctg tgtgtgtgcg tgcccctccc ctgcagccgt cggtggtatc tccctccagc 480
cccttcgcca ccttctgagc attgtctgtc cacgtgagac tgcccagaga cagcagagct 540
ccacgtggtt ttaaggggag acctttccct ggacctgggg gtctcgccgt atctcatgac 600
caggtgctaa atgacccgac atgcatcacc tgcctttcga tgaccaacct ccctgtcccc 660
gtcccgctga cctgcccccg tggcgtctca cggtgatgcc tgctcctgac attggtgttc 720
actgtagcaa actacattct ggatgggaat tttcatgtac atgtgtggca tgtggaaaat 780
ttcaaataaa atggacttga tttagaaagc caaaaagctg tgtggtcctt ccagcacgga 840
tactttgacc tcttgcctac aaccccttcc ttgggtccga ggctggtagc tttgttcact 900
tcagatggtt gggggcgggt g
```

(2) INFORMATION ON SEQ ID NO. 50:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 338 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 50:

```
atgatctatc tagatgccct accgtaaaat caaaacacaa aaccctactg actcattccc 60
tcccttccag atattacccc atttctctac ttcccattgt agccaaactt tccaaaaatt 120
catgttctgt cttcatttcc tcatgttcaa cccaccctgt cttagctacc acccctcagt 180
aacgacctag cctgggtaga aacaaatgtc agcatgatac catactcaat gatccttcgt 240
cactgttgtc attgtcatca ttccatggcc ttactttccc tctcagcgcc atttgctaca 300
gtaagaaact ttctttcttg aattcttggt tctcttgg
```

(2) INFORMATION ON SEQ ID NO. 51:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1191 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 51:

ctagcaagca ggtaaacgag ctttgtacaa acacacacag accaacacat ccggggatgg 60
ctgtgtgttg ctagagcaga ggctgattaa acactcagtg tgttggctct ctgtgccact 120
cctggaaaat aatgaattgg gtaaggaaca gttaataaga aaatgtgcct tgctaactgt 180
gcacattaca acaaagagct ggcagctcct gaaggaaaag ggcttgtgcc gctgccgttc 240
aaacttgtca gtcaactcat gccagcagcc tcagcgtctg cctccccagc acaccctcat 300
tacatgtgtc tgtctggcct gatctgtgca tctgctcgga gacgctcctg acaagtcggg 360
aatttctcta tttctccact ggtgcaaaga gcggatttct ccctgcttct cttctgtcac 420
ccccgctcct ctcccccagg aggctccttg atttatggta gctttggact tgcttccccg 480
tctgactgtc cttgacttct agaatggaag aagctgagct ggtgaaggga agactccagg 540
ccatcacaga taaaagaaaa atacaggaag aaatctcaca gaagcgtctg aaaatagagg 600
aagacaaact aaagcaccag catttgaaga aaaaggcctt gagggagaaa tggcttctag 660
atggaatcag cagcggaaaa gaacaggaag agatgaagaa gcaaaatcaa caagaccagc 720
accagatcca ggttctagaa caaagtatcc tcaggcttga gaaagagatc caagatcttg 780
aaaaagctga actgcaaatc tcaacgaagg aagaggccat tttaaagaaa ctaaagtcaa 840
ttgagcggac aacagaagac attataagat ctgtgaaagt ggaaagagaa gaaagagcag 900
aagagtcaat tgaggacatc tatgctaata tccctgacct tccaaagtcc tacatacctt 960
ctaggttaag gaaggagata aatgaagaaa aagaagatga tgaacaaaat aggaaagctt 1020
tatatgccat ggaaattaaa gttgaaaaag acttgaagac tggagaaagt acagttctgt 1080
cttccaatac ctctggccat cagatgactt taaaaggtac aggagtaaaa gtttaagatg 1140
atgggcaaaa gtccagtgta ttcagtaaag tgctaatcac aagttggagg t

(2) INFORMATION ON SEQ ID NO. 52:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1200 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 52:

```
aacagggact ctcactctat caaccccagg ctggagtccg gtgcgcccac cctggctccc 60
tgcaacctcc gcctcccagg ctcaagcaac tctcctgcct cagtcgctct agtagctggg 120
actacaggca cacaccacca tgcccagcca atttttgcat tttttgtaga gacagggttt 180
cgccttctgt ccaggccggc atcatatact ttaaatcatg cccagatgac tttaatacct 240
aatacaatat atcaggttgg tttaaaaata attgcttttt tattattttt gcatttttgc 300
accaacctta atgctatgta aatagttgtt atactgttgc ttaacaacag tatgacaatt 360
ttggcttttt ctttgtatta ttttgtattt ttttttttta ttgtgtggtc ttttttttt 420
ttctcagtgt tttcaattcc tccttggttg aatccatgga tgcaaaaccc acagatatga 480
agggctggct atatatgcat tgatgattgt cctattatat tagttataaa gtgtcattta 540
atatgtagtg aaagttatgg tacagtggaa agagtagttg aaaacataaa catttggacc 600
tttcaagaaa ggtagcttgg tgaagttttt caccttcaaa ctatgtccca gtcagggctc 660
tgctactaat tagctataat ctttgcacaa attacatcac ctttgagtct cagttgcctc 720
acctgtaaaa tgaaagaact ggatactctc taaggtcact tccagccctg tcattctata 780

actctgttat gctgaggaag aaattcacat tgtgttaact gtatgagtca aactgaaaat 840
gattattaaa gtgggaaaaa gccaattgct tctcttagaa agctcaacta aatttgagaa 900
gaataatctt ttcaattttt taagaattta aatattttta agggtttgac ctatttattt 960
agagatgggg tctcactctg tcacccagac tggagtacag tggcacaatc atagctcact 1020
gctgcctcaa attcatgggc tcaagtgatc ctcctgcctc tgcctccaga gtagctgcga 1080
ctatgggcat gtgccaccac gcctggctaa catttgtatt gacctattta tttattgtga 1140
tttatatctt ttttttttt tctttttttt ttttttacaa aatcagaaat acttattttg 1200
```

(2) INFORMATION ON SEQ ID NO. 53:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 989 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 53:

```
aagccaccac tcaaaacttc ctatacattt tcacagcaga gacaagtgaa catttatttt 60

tatgcctttc ttcctatgtg tatttcaagt ctttttcaaa acaaggcccc aggactctcc 120
gattcaatta gtccttgggc tggtcgactg tgcaggagtc cagggagcct ctacaaatgc 180
agagtgactc tttaccaaca taaaccctag atacatgcaa aaagcaggac ccttcctcca 240
ggaatgtgcc atttcagatg cacagcaccc atgcagaaaa gctggaattt tccttggaac 300
cgactgtgat agaggtgctt acatgaacat tgctactgtc tttctttttt tttgagacag 360
gtttcgcttg tgcccaggct gagtgcaatg cgtgatctca ctcactgcaa ttccacctcc 420
aggttcaagc attctcctgc tcagcctcct agtagctggg ttacaggcac tgccaccatg 480
ccggctaatt ttgtattttt gtagagatgg atttctccat ttggtcaggc ggtctcgaac 540
cccaacctca gtgatctgcc acctcagcct cctaagtgtt ggattacagg atgagccacc 600
cgaccggcca ctactgtctt tctttgaccc ttccagtttc gaagataaag aggaaataat 660
ttctctgaag tacttgataa aatttccaaa caaaacacat gtccacttca ctgataaaaa 720
atttaccgca gtttggcacc taagagtatg acaacagcaa taaaaagtaa tttcaaagag 780
ttaagatttc ttcagcaaaa tagatgattc acatcttcaa gtccttttg aaatcagtta 840
ttaatattat tctttcctca tttccatctg aatgactgca gcaatagttt ttttttttt 900
ttttttttt ttgcgagatg gaatctcgct ctgtcgccca gcgggagtgc actggcgcaa 960
gcccggctca ccgcaatctc tgccacccg
```

(2) INFORMATION ON SEQ ID NO. 54:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 250 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 54:

catttcccca ttggtcctga tgttgaagat ttagttaaag aggctgtaag tcaggttcga 60
gcagaggcta ctacaagaag tagggaatca agtccctcac atgggctatt aaaactaggt 120
agtggtggag tagtgaaaaa gaaatctgag caacttcata acgtaactgc ctttcaggga 180
aaagggcatt ctttaggaac tgcatctggt aacccacacc ttgatccaag agctagggaa 240
acttcagttg

(2) INFORMATION ON SEQ ID NO. 55:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 2270 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 55:

gcgcccccga gcagcgcccg cgccctccgc gccttctccg ccgggacctc gagcgaaaga 60
ggcccgcgcg ccgcccagcc ctcgcctccc tgcccaccgg gcacaccgcg ccgccacccc 120
gaccccgctg cgcacggcct gtccgctgca caccagcttg ttggcgtctt cgtcgccgcg 180
ctcgccccgg gctactcctg cgcgccacaa tgagctcccg catcgccagg gcgctcgcct 240
tagtcgtcac ccttctccac ttgaccaggc tggcgctctc cacctgcccc gctgcctgcc 300
actgcccccc ggaggcgccc aagtgcgcgc cgggagtcgg gctggtccgg gacggctgcg 360
gctgctgtaa ggtctgcgcc aagcagctca acgaggactg cagcaaaacg cagccctgcg 420
accacaccaa ggggctggaa tgcaacttcg gcgccaagtc caccgctctg aaggggatct 480
gcagagctca gtcagagggc agaccctgtg aatataactc cagaatctac caaaacgggg 540
aaagtttcca gcccaactgt aaacatcagt gcacatgtat tgatggcgcc gtgggctgca 600
ttcctctgtg tccccaagaa ctatctctcc ccaacttggg ctgtcccaac cctcggctgg 660
tcaaagttac cgggcagtgc tgcgaggagt gggtctgtga cgaggatagt atcaaggacc 720
ccatggagga ccaggacggc ctccttggca aggagctggg attcgatgcc tccgaggtgg 780
agttgacgag aaacaatgaa ttgattgcag ttggaaaagg cagctcactg aagcggctcc 840
ctgtttttgg aatggagcct cgcatcctat acaacccttt acaaggccag aaatgtattg 900
ttcaaacaac ttcatggtcc cagtgctcaa agacctgtgg aactggtatc tccacacgag 960
ttaccaatga caaccctgag tgccgccttg tgaaagaaac ccggatttgt gaggtgcggc 1020
cttgtggaca gccagtgtac agcagcctga aaaagggcaa gaaatgcagc aagaccaaga 1080
aatcccccga accagtcagg tttacttacg ctggatgttt gagtgtgaag aaataccggc 1140
ccaagtactg cggttcctgc gtggacggcc gatgctgcac gccccagctg accaggactg 1200
tgaagatgcg gttccgctgc gaagatgggg agacattttc caagaacgtc atgatgatcc 1260
agtcctgcaa atgcaactac aactgcccgc atgccaatga agcagcgttt cccttctaca 1320
ggctgttcaa tgacattcac aaatttaggg actaaatgct acctgggttt ccagggcaca 1380
cctagacaaa caagggagaa gagtgtcaga atcagaatca tggagaaaat gggcgggggt 1440
ggtgtgggtg atgggactca ttgtagaaag gaagccttgc tcattcttga ggagcattaa 1500
ggtatttcga aactgccaag ggtgctggtg cggatggaca ctaatgcagc cacgattgga 1560
gaatactttg cttcatagta ttggagcaca tgttactgct tcattttgga gcttgtggag 1620
ttgatgactt tctgttttct gtttgtaaat tatttgctaa gcatattttc tctaggcttt 1680
tttccttttg gggttctaca gtcgtaaaag agataataag attagttgga cagtttaaag 1740
cttttattcg tcctttgaca aaagtaaatg ggagggcatt ccatcccttc ctgaaggggg 1800
acactccatg agtgtctgtg agaggcagct atctgcactc taaactgcaa acagaaatca 1860
ggtgttttaa gactgaatgt tttatttatc aaaatgtagc ttttggggag ggaggggaaa 1920
tgtaatactg gaataatttg taaatgattt taattttata ttcagtgaaa agattttatt 1980
tatggaatta accatttaat aaagaaatat ttacctaata tctgagtgta tgccattcgg 2040
tatttttaga ggtgctccaa agtcattagg aacaacctag ctcacgtact caattattca 2100
aacaggactt attgggatac agcagtgaat taagctatta aaataagata atgattgctt 2160
ttataccttc agtagagaaa agtctttgca tataaagtaa tgtttaaaaa acatgtattg 2220
aacacgacat tgtatgaagc acaataaaga ttctgaagct aaaaaaaaaa

(2) INFORMATION ON SEQ ID NO. 56:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1636 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 56:

cttgaatgaa gctgacacca agaaccgcgg gaagagcttg ggcccaaagc aggaaaggga 60
agcgctcgag ttggaaagga accgctgctg ctggccgaac tcaagcccgg gcgcccccac 120
cagtttgatt ggaagtccag ctgtgaaacc tggagcgtcg ccttctcccc agatggctcc 180
tggtttgctt ggtctcaagg acactgcatc gtcaaactga tcccctggcc gttggaggag 240
cagttcatcc ctaaagggtt tgaagccaaa agccgaagta gcaaaaatga gacgaaaggg 300
cggggcagcc caaaagagaa gacgctggac tgtggtcaga ttgtctgggg gctggccttc 360
agcccgtggc cttccccacc cagcaggaag ctctgggcac gccaccaccc ccaagtgccc 420
gatgtctctt gcctggttct tgctacggga ctcaacgatg ggcagatcaa gatctgggag 480
gtgcagacag ggctcctgct tttgaatctt tccggccacc aagatgtcgt gagagatctg 540
agcttcacac ccagtggcag tttgattttg gtctccgcgt cacgggataa gactcttcgc 600
atctgggacc tgaataaaca cggtaaacag attcaagtgt tatcgggcca cctgcagtgg 660
gtttactgct gttccatctc cccagactgc agcatgctgt gctctgcagc tggagagaag 720
tcggtctttc tatggagcat gaggtcctac acgttaattc ggaagctaga gggccatcaa 780
agcagtgttg tctcttgtga cttctccccc gactctgccc tgcttgtcac ggcttcttac 840
gataccaatg tgattatgtg ggacccctac accggcgaaa ggctgaggtc actccaccac 900
acccaggttg accccgccat ggatgacagt gacgtccaca ttagctcact gagatctgtg 960
tgcttctctc cagaaggctt gtaccttgcc acggtggcag atgacagact cctcaggatc 1020
tgggccctgg aactgaaaac tcccattgca tttgctccta tgaccaatgg gctttgctgc 1080
acatttttc cacatggtgg agtcattgcc acagggacaa gagatggcca cgtccagttc 1140
tggacagctc ctagggtcct gtcctcactg aagcacttat gccggaaagc ccttcgaagt 1200
ttcctaacaa cttaccaagt cctagcactg ccaatcccca agaaaatgaa agagttcctc 1260
acatacagga ctttttaagc aacaccacat cttgtgcttc tttgtagcag ggtaaatcgt 1320

cctgtcaaag ggagttgctg gaataatggg ccaaacatct ggtcttgcat tgaaatagca 1380
tttctttggg attgtgaata gaatgtagca aaaccagatt ccagtgtaca taaaagaatt 1440
tttttgtctt taaatagata caaatgtcta tcaactttaa tcaagttgta acttatattg 1500
aagacaattt gatacataat aaaaaattat gacaatgtcc tgggaaaaaa aaaatgtaga 1560
aagatggtga agggtgggat ggatgaggag cgtggtgacg ggggcctgca gcgggttggg 1620
gaccctgtgc tgcgtt

(2) INFORMATION ON SEQ ID NO. 57:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 460 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 57:

ccatgtgtgt atgagagaga gagagattgg gagggagagg gagctcacta gcgcatatgt 60

gcctccaggg ggctgcagat gtgtctgagg gtgagcctgg tgaaagagaa gacaaaagaa 120
tggaatgagc taaagcagcc gcctggggtg ggaggccgag cccatttgta tgcagcaggg 180
ggcaggagcc cagcaaggga gcctccattc ccaggactct ggagggagct gagaccatcc 240
atgcccgcag agccctccct cacactccat cctgtccagc cctaattgtg caggtgggga 300
aactgaggct gggaagtcac atagcaagtg actggcagag ctgggactgg aacccaacca 360
gcctcctaga ccacggttct tcccatcaat ggaatgctag agactccagc caggtgggta 420
ccgagctcga attcgtaatc atggtcatag ctgtttcctg

(2) INFORMATION ON SEQ ID NO. 58:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 1049 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 58:

atctgatcaa gaatacctgc cctggtcact ctgcggatgt ttctgtccac ttgttcacat 60

tgaggaccaa gatatccttt tttacagagg cacttgttcg gtctaacaca gacacctcca 120
tgacgacatg ctggctcaca ttttgcagtt ctgcagaagt ccccctccca gcctggacta 180
cagcagcact ttcccgtggg ggtgcagtag ccgtttcgac agagcctgga gcactctgaa 240
gtcagtgtct gtgcaggttg taccgtggct ctgcattcct caggcattaa aggtcttttg 300
ggatctacaa ttttgtagag ttttccattg tgagtctggg tcatactttt actgcttgat 360
aaaatgtaaa cttcacctag ttcatcttct ccaaatccca agatgtgacc ggaaaagtag 420
cctctacagg acccactagt gccgacacag agtggttttt cttgccactg ctttgtcaca 480
ggactttgct ggagagttag gaaattccca ttacgatctc caaacacgta gcttccatac 540
aatctttctg actggcagcc ccggtataca aatccaccaa ccaaaggacc attactgaat 600
ggcttgaatt ctaaaagtga tggctcactt tcataatctt tccccttat tatctgtaga 660
attctggctg atgatctgtt ttttccattg gagtctgaac acagtatcgt taaattgatg 720
tttatatcag tgggatgtct atccacagca catctgcctg gatcgtggag cccatgagca 780
aacacttcgg ggggctggtt ggtgctgttg aagtgtgggt tgctccttgg tatggaataa 840
ggcacgttgc acatgtctgt gtccacatcc agccgtagca ctgagcctgt gaaatcactt 900
aacccatcca tttcttccat atcatccagt gtaatcatcc catcaccaag aatgatgtac 960
aaaaacccgt cagggccaaa gagcagttgc cctcccagat gctttctgtg gagttctgca 1020
acttcaagaa agactctggc tgttctcaa

(2) INFORMATION ON SEQ ID NO. 59:

(i) SEQUENCE CHARACTERISTIC:
(A) LENGTH: 747 base pairs
(B) TYPE: Nucleic acid
(C) STRAND: individual
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:
(A) ORGANISM: HUMAN
(C) ORGAN:

(vii) OTHER ORIGIN:
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 59:

ttttttcaaat cacatatggc ttctttgacc ccatcaaata actttattca cacaaacgtc 60
ccttaattta caaagcctca gtcattcata cacattaggg gatccacagt gttcaaggaa 120
cttaaatata atgtatcata ccaacccaag taaaccaagt acaaaaaata ttcatataaa 180
gttgttcaca cgtaggtcct agattaccag cttctgtgca aaaaaaggaa atgaagaaaa 240
atagatttat taactagtat tggaaactaa ctttgtgcct ggcttaaaac ctccctcacg 300
ctcgtctgtc ccacacaaat gtttaagaag tcactgcaat gtactccccg gctctgatga 360
aaagaagccc ctggcacaaa agattccagt gcccctgaag aggctccctt cctcctgtgg 420
gctctcctag aaaaccagcg ggacggcctc cctgctgata ccgtctataa ccttaggggg 480
ccctcgggca ggcaacggca gtggactcat ctcggtgatg gctgtagatg ctaacactgg 540
ccaattcaat gccacaccta ctggttaccc tttgagggca tttctccaga cagaagcccc 600
ttgaagccta ggtagggcag gatcagagat acacccgtgt ttgtctcgaa gggctccaca 660
gcccagtacg acatgcttgc agaagtagta tctctggact tctgcctcca gtcgaccggc 720
cgcgaattta gtagtaatag cggccgc